USACE Army
LEED Implementation Guide

January 15, 2008

Headquarters, U. S. Army Corps of Engineers

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USACE Army LEED Implementation Guide

1. Purpose. This implementation guidance is to assist USACE Project Delivery Teams (PDTs) meet the Army's Sustainable Design and Development policy.

2. Background. The Sustainable Project Rating Tool (SPiRiT) was implemented as the Army's sustainable design rating tool in 2001. The U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design – New Construction (LEED-NC) rating tool replaced SPiRiT effective with the FY 08 Military Construction Army (MCA) program, except Army Family Housing projects, which continue to be rated using SPiRiT. For projects rated using SPiRiT, references to "LEED" in this document should be substituted with "SPiRiT" (processes are the same), except discussion of USGBC registration and certification is not applicable to SPiRiT projects. Links to the documents referred to in this guidance can be found at Appendix A, Army LEED-NC Credit Guidance and Resources. All civilian employees of and uniformed members of the Army are full members of the USGBC and qualify for all member discounts and benefits.

3. Requirements

a. MINIMUM REQUIREMENT - NEW CONSTRUCTION. Starting with the FY08 program, all vertical construction projects with climate-controlled facilities will achieve the SILVER level of LEED-NC. This requirement applies worldwide to all construction on permanent Army installations, Army Reserve, Army Readiness Centers and Armed Forces Reserve Centers, regardless of funding source and including BRAC. For tenant projects on Army property, USACE project Master Planner and Project Manager (PM) will make the tenant organization aware of this requirement and advise them to coordinate directly with the installation DPW if this requirement cannot be met. Projects prior to the FY 08 program will continue to use SPiRiT and achieve the minimum GOLD rating level. Such projects may be scored using LEED if the LEED SILVER rating level can be achieved within the programmed amount.

b. MINIMUM REQUIREMENT – RENOVATION AND REPAIR. Renovation and repair projects are defined as major renovation and shall meet the same requirement as new construction when they:

(1) Exceed the garrison commander authority AND

(2) Have a repair to replacement ratio equal to or greater than 25 percent. Note: Both UFC 3-701-07, DoD Facilities Pricing Guide, and DA Pamphlet 420-11, Project Definition and Work Classification, provide guidance for computing the facility replacement value.

Renovation and repair projects that do not meet the above definition for major renovation will be scored using LEED-NC and incorporate sustainable design features to the maximum extent possible, but will be exempt from the minimum score that applies to new construction.

c. NEW CONSTRUCTION MINIMUM LEED-NC SCORE EXEMPTIONS:

(1) HORIZONTAL CONSTRUCTION. Horizontal construction projects, such as ranges, roads and airfields, will be scored using LEED-NC and incorporate sustainable design features to the maximum extent possible, but will be exempt from the minimum score that applies to new construction. Climate-controlled buildings included in horizontal construction projects are not included in this exemption and shall achieve the minimum LEED-NC rating.

(2) BUILDINGS THAT ARE NOT CLIMATE-CONTROLLED. If the building has no climate controlled area, the building will be scored using LEED-NC and incorporate sustainable design features to the maximum extent possible, but it is exempt from the minimum score that applies to new construction. Climate controlled area is area that is mechanically heated and/or mechanically cooled for human comfort.

(3) ARMY FAMILY HOUSING. SPiRiT will be used to rate all Army Family Housing new construction projects and homes built under the Residential Communities Initiative. These projects will achieve SPiRiT GOLD level.

(4) OVERSEAS CONTINGENCY CONSTRUCTION AND CONUS INTERIM FACILITIES. This requirement applies to permanent facility construction only. Excluded are overseas contingency construction and CONUS interim facilities. An interim facility requirement is a short-term (normally 3 years or less) urgent requirement for facilities due to transitory peak military missions, deployments, military contingency operations, disaster relief requirements, or pending approval and construction of real property facilities via normal military construction programs.

d. FAILURE TO MEET REQUIREMENTS If, after budget lock, a project cannot meet LEED requirements within funds available, the PDT shall submit a change request per the procedures in Army Regulation (AR) 420-1, Army Facilities Management (chapter 4). This will be done as soon as the failure is known, but no later than the next prescribed reporting point (paragraph 7). If, at project completion, the required level is not achieved, the PM will prepare a lessons learned report and forward it to the Regional Integration Team (RIT) Program Manager and the E&C cost engineering POC with an explanation as to why this level was not achieved.

4. Integrated Design and Project Delivery Team Members. An integrated design approach will be used and the PDT composition will reflect this approach. For a description of integrated design see ERDC/CERL TR-04-19, SPiRiT Scoring Through Self-Assessment Charrettes. All PDTs will include a LEED Accredited Professional (LEED AP) for both the design and construction phases. A LEED AP contributes to the PDT by ensuring correct interpretation of LEED credit requirements by the PDT, providing guidance and assistance to PDT members in developing suitable and complete documentation, tracking overall LEED accomplishments, and monitoring individual actions of PDT members responsible for each specific LEED credit. See Appendix E FAQs for information on becoming a LEED AP.

5. Validation

a. GOVERNMENT VALIDATION. All projects produce LEED documentation as part of project development and execution, using project funds. Army policy does not require formal third party certification of projects by the USGBC. The supporting Engineer District, as Authorized Design and Construction Agent, is responsible for reviewing the project documentation and validating all credits, in accordance with the USGBC standard, from design through construction closeout.

b. COORDINATION AND ENDORSEMENT. The District is also responsible for coordinating with the Installation Director of Public Works (DPW) or the Reserve Component equivalent, the USACE designated Center of Standardization (COS), if applicable, the designer and the constructor to obtain consensus on the project score and rating. The USACE District, as Design and Construction Agent, is ultimately responsible for ensuring correct interpretation and scoring in accordance with the USGBC standards.

c. USGBC REGISTRATION. The Army does not require registration of projects with the USGBC, but PDTs may choose to register any project. See Appendix C for special registration requirements for COS Multiple-Contractor projects.

(1) LEED LETTER TEMPLATES. Registration allows the PDT to download and use the USGBC LEED Letter Templates (preformatted credit documentation forms with built-in calculators) for project documentation. USGBC registration is the only legal means to access the copyright-protected LEED Letter Templates. Downloaded LEED Letter Templates may not be locally duplicated for use on unregistered projects. Sample LEED Letter Templates are available for review at the usgbc.org website. See Appendix C for special requirements for COS Multiple-Contractor projects.

(2) LEED-ONLINE. LEED documentation for registered projects may be compiled, stored and reviewed online at the registered project website using LEED-Online if the PDT chooses to do so.

(3) USGBC CREDIT INTERPRETATIONS. Registered project team members may submit credit interpretation requests to USGBC (contact USGBC for fees associated with this service). Note that all previous credit interpretation requests with USGBC rulings (CIRs) are posted in the "members only" area of the USGBC website. All CIRs from USGBC are considered official LEED policy and may be applied to all projects.

(4) REGISTRATION FEES. If the PDT chooses to register a project with the USGBC, fees for project registration may be paid from project design or construction funds. See www.usgbc.org for project registration procedures and fees.

(5) REGISTERED PROJECT ADMINISTRATOR. Each registered project must designate an online project administrator. This individual controls access and save/modify data privileges in the project online Letter Templates. Only one project administrator is allowed per registered project, but project administrator designation may be transferred from one person to another during the course of a project. PDT personnel may manage online administration, contracts may include a requirement for the Contractor to manage online administration, or a combination with administration transfer(s) may be done based on project requirements and PDT/District staffing and preference.

(6) WHO REGISTERS A PROJECT. PDT personnel may register the project or contracts may include a requirement for the Contractor to register the project.

(7) WHEN TO REGISTER A PROJECT. Projects should be registered before design commences so that the templates are available to the design team from the start of design. If the site selection points are documented during design-build Request For Proposal (RFP) preparation, the project should be registered during RFP preparation.

d. USGBC CERTIFICATION. USGBC certification is accomplished by means of USGBC review of all documentation and subsequent certification of the project score by USGBC. The Army does not require certification of projects by USGBC and expects USACE to perform this service (government validation) except as noted below in paragraph 5e. If the PDT chooses to seek USGBC certification of a project, it may use project funds as long as costs do not exceed the project Programmed Amount. See www.usgbc.org for project certification procedures and fees. PDT personnel may submit the project for certification or contracts may include a requirement for the Contractor to obtain USGBC certification.

e. ARMY USGBC CERTIFICATION PROGRAM. The Army plans to select a number of projects annually for formal USGBC Certification, starting in FY10. If a project is selected for USGBC certification, the District PM will be notified of the requirement no later than issuance of the Code 3 Design Directive. If a project is included in this program, any associated fees for project registration and certification will be paid from project design or construction funds.

f. ACSIM VALIDATION PROGRAM. The OACSIM may conduct reviews to validate project scores for the continued use of SPiRiT and to assess the effective implementation of LEED for Army construction projects. A validation team will conduct these project reviews.

6. Documentation

a. GOVERNMENT-VALIDATED PROJECTS. Project documentation of Sustainable Design and Development (SDD) credits must be separable from other project documentation, consistent in content and level of detail to LEED requirements, kept current throughout the project, and included in the project files. The LEED 2.2 Documentation Requirements and Submittal Checklist, available

at http://en.sas.usace.army.mil, “Engineering Criteria”, is a detailed submittal list from design through construction closeout that is consistent with LEED-NC documentation requirements and includes submittal due dates (which vary from USGBC due dates to accommodate USACE contract conformance review). This document applies to all RFPs, design contracts and construction contracts rated using LEED-NC, version 2.2.

(1) AUDIT DOCUMENTATION. The entity responsible for validation of projects may audit any or all credits claimed. The additional documentation that is required for audited credits is indicated in the LEED 2.2 Documentation Requirements and Submittals Checklist.

b. USGBC CERTIFICATION PROJECTS. Documentation for USGBC certification projects is the same as that for Government-validated projects, except that project information must be documented in LEED Letter Templates using LEED-Online. Additionally, the USGBC submittal content requirements have precedence over the LEED 2.2 Documentation Requirements and Submittals Checklist submittal content requirements in the event of conflict. The Designer of Record and Contractor must support the certification process to achieve certification.

c. EPACT COMPLIANCE AND LEED OPTIMIZE ENERGY POINTS. Army requires EPACT compliance to be measured as a percentage reduction in energy use. The LEED Optimize Energy credit assigns points based on percentage reduction in energy cost. To minimize the production of both energy use calculations and energy cost calculations, projects that do not require USGBC certification may apply the EPACT energy use reduction percentage (instead of energy cost reduction percentage) to determine the points earned for the LEED Optimize Energy credit and may substitute EPACT calculations for LEED calculations. ERDC is developing prescriptive path options for specific facilities to achieve EPACT 30% energy reduction (HQUSACE POC for this effort is Gary Bauer). These prescriptive path options are being added to the MT RFP wizard as they are approved. In a project that does not require USGBC certification, any facility that complies fully with its prescriptive path option may take the LEED Optimize Energy points that correspond to the energy reduction percentage stated by the prescriptive path without providing supporting calculations. Projects that are seeking USGBC certification must earn Optimize Energy points in accordance with LEED and must provide LEED supporting calculations (energy cost reduction) for this credit.

d. PRESCRIBED REPORTING POINTS DOCUMENTATION. At each prescribed reporting point indicated in paragraph 7 below, the USACE district-validated rating will be coordinated with and endorsed in writing by the Installation DPW or the Reserve Component equivalent, the USACE designated COS if applicable, the designer and the constructor as applicable. The endorsed LEED Project Checklist (initialed or signed by all applicable parties) will be placed in the project files by the PM.

7. Reporting

a. PROJECT MANAGER RESPONSIBILITY. The PM is responsible at all project phases for ensuring that a PDT consensus LEED score is established, and for recording and reporting the results.

b. PRESCRIBED REPORTING POINTS. Prescribed Reporting Points documentation, as described in paragraph 6c, is required at the following prescribed reporting points:

(1) DESIGN-BID-BUILD (DBB) PROJECT PRESCRIBED REPORTING POINTS.

a) Project Planning Charrette to set target SDD performance goals and address budget impacts

b) Parametric Submittal/Code 3 Design to revise target credits and score

c) Final Design to establish a final design score

d) Beneficial Occupancy/Construction Closeout to establish a final project score.

(2) DESIGN-BUILD (DB) PROJECT PRESCRIBED REPORTING POINTS.

a) Project Planning Charrette to set target SDD performance goals and address budget impacts

b) Parametric Submittal/Code 3 Design/Final RFP to revise target credits and score

c) Conformed Proposal. After negotiations are complete at award

d) Beneficial Occupancy/Construction Closeout to establish a final project score.

c. P2 REPORTING. Once established in P2, the rating tool and the current rating will be reported in P2 for all projects under 'SPiRiT/LEED Rating.' Under 'SPiRiT/LEED Comments' include any additional comments concerning the achievement of credits the PM deems relevant.

(1) CURRENT AND PENDING RATING. All projects have a current rating that is established at the initial programming charette and is finalized at project completion. Throughout the course of the project the PM will report the current rating in P2. A "pending" rating will be reported in P2 only until the initial charette, when the current rating is established.

(2) P2 REPORTING FOR EXEMPT PROJECTS. For projects that are exempt from the minimum score requirements, under 'SPiRiT/LEED Rating' indicate "N/A". Under 'SPiRiT/LEED Comments' indicate which rating tool is used, project rating and why project is exempt from the minimum score requirement (example: horizontal construction).

(3) P2 REPORTING FOR PROJECTS WITH MULTIPLE BUILDINGS. Projects with multiple buildings will be rated using the LEED-NC Application Guide for Multiple Buildings and On-Campus Building Projects to obtain one project rating, which will be reported in P2 under 'SPiRiT/LEED Rating.' Under 'SPiRiT/LEED Comments' include any additional comments concerning the achievement of credits the PM deems relevant.

8. Multiple Building Projects. The LEED-NC Application Guide for Multiple Buildings and On-Campus Building Projects, by USGBC, provides guidance on how to score projects that include multiple buildings. It includes direction on which credits must be earned individually by each building (such as Optimize Energy credits) and which credits may be calculated on an aggregate basis (such as Recycled Content credit). It also provides alternative compliance paths that are uniquely suited to an Army Installation environment, such as the option to provide a remote aggregate open space in lieu of an adjacent open space for the Maximize Open Space credit, and guidance on how to treat shared features such as consolidated parking and central energy plants. PDTs will use this guide to apply LEED to multiple-building projects and to simplify documentation. It is a free download at usgbc.org. A spreadsheet that summarizes the individual credit guidance in this guide is available at http://en.sas.usace.army.mil , "Engineering Criteria" for PDT use. For each non-exempt building in a project, the sum of the individual building credits and the aggregate project credits must achieve the required LEED level.

9. Initial Project Programming/Planning Charrette

a. LEED PROJECT CHECKLIST. At the planning charrette, use LEED to establish a strategy for meeting the sustainability goals for the project, identify all individual credits feasible to reach the goal, and ensure first costs associated with this strategy are captured in the DD Form 1391. The quality of this effort greatly influences the project's success in achieving SDD goals. The strategy will be captured on the LEED Project Checklist.

b. PROGRAMMING SDD COSTS. Specific guidance for including sustainable design costs in 1391s is contained in the April 27, 2007 Deputy Assistant Secretary of the Army (Installations & Housing) memorandum "Sustainable Design and Development Policy Update – Life-Cycle Costs". The guidance contained in this memorandum is applicable beginning with the FY09 program. Under the primary facilities cost, a separate line item will be added labeled "SDD & EPAct05" (under DD Form 1391 category code 00005). This cost line item will include the "additional costs" associated with achieving this policy. "Additional costs" is defined as the added cost to raise a facility's LEED rating from Certified to Silver. If the additional costs are undetermined at the time the DD Form 1391 is developed, they will be programmed at 2 percent of the primary facility cost (facilities with climate control systems only) until they are determined. When the costs exceed 2 percent, an explanation will be provided in the description of the proposed construction under block 10 of the DD Form 1391 describing the SDD, EPAct05 and/or EO 13423 features (for example building envelope enhancements, daylighting controls, solar collectors and energy recovery units) included in the design. For DD Forms 1391 with multiple primary facilities, the SDD & EPAct05 primary line item will include sub-line items for each climate controlled facility's SDD & EPAct05 costs. Site related SDD features (for example cisterns, storm water detention structures and porous pavement) shall be programmed as line item supporting facilities. If site-related SDD features causes supporting facilities cost to exceed the target of 25% of primary facilities cost, these features shall be included in the "SDD & EPACT" primary facility line item, individually identified with separate sub-line items, and included in the description of the proposed SDD, EPAct05 and/or EO 13423 features in block 10.

c. ENDORSEMENT, REPORTING AND DOCUMENTATION. The LEED Project Checklist representing the project strategy resulting from the planning charrette will be endorsed by the Installation DPW or the Reserve Component equivalent, the COS (if applicable) and the supporting Engineer District or Authorized Design and Construction Agent, reported per paragraph 7 and included in the project files.

10. Code 3 Design/Parametric Estimating Using ENG Form 3086. The Code 3 design provides project definition services and the 3086 estimate, which is used as a basis to validate and update the 1391 prior to submission to Congress. See UFC 3-710-01A "Code 3 Design with Parametric Estimating" for a detailed explanation of Code 3 activities.

a. LEED PROJECT CHECKLIST. At the project definition charrette, use LEED to refine and/or validate the target sustainability credit goals for the project as identified in the planning charrette and provide a LEED Project Checklist, updated as needed.

b. VALIDATING SDD COSTS. Re-validate and update, if necessary, the cost data created during the Initial Project Programming/Planning Charrette. Projects claiming additional costs (over 2% of the primary facilities cost) for meeting a Silver Rating shall include a fully completed Sustainable Cost Template with the Budget Cost Estimates/Parametric Estimates submittal (Eng Form 3086). The Sustainable Cost Template is available at http://www.wbdg.org/ccb/ARMYCOE/COEECB/ecb_2006_2_sdd_cost_template.xls. Complete the Sustainable Cost Template identifying the points chosen to achieve LEED Certified level, the additional points chosen to achieve LEED Silver level, the incremental cost information (cost impact to raise a facility's LEED rating from Certified to Silver) and, if known, the potential life cycle cost savings associated with incorporating the additional proposed credits. Projects that are not

claiming additional costs (over 2% of the primary facilities) for meeting a Silver Rating are not required to submit the Sustainable Cost Template.

c. ENDORSEMENT, REPORTING AND DOCUMENTATION. The updated LEED Project Checklist will be endorsed by the Installation DPW or the Reserve Component equivalent, the COS (if applicable) and the supporting Engineer District or Authorized Design and Construction Agent, reported per paragraph 7 and included in the project files.

d. COS CONTINUOUS BUILD PROGRAM PROJECTS. As the transition of approved Standard Designs to 'Adapt-Build' advances, the credits each standard design always earns will be better defined. However, the building/site overall combined strategy coordination is still critical to reaching project goals, and the Code 3 activities are the same.

11. Design-Build (DB) Request for Proposal

a. GENERAL STRATEGY. Generally, the minimum score requirement is indicated and Offerors are given maximum latitude to develop the overall credit strategy based on project opportunities and Offeror's experience and strengths. Individual required, preferred and prohibited credits may be identified as needed based on project-specific coordination, but should not be overly restrictive. The RFP conveys the status of credits that fall outside design scope (such as site selection credits) and includes coordination information relative to credits (such as availability of Installation recycling facilities). Appendix B contains sample language for RFPs. Include the following information in the RFP:

(1) Identify the minimum LEED rating. Identify any buildings in the project that are exempt from the minimum LEED rating requirement.

(2) Indicate the status of credits that are earned based on the site selection, including Site Selection, Development Density, Brownfield, Alternative Transportation (mass transit access). Indicate whether the project earns the Green Power credit. The RFP Preparer is responsible for providing all supporting documentation for these credits, if earned.

(3) For multiple building projects, require use of the USGBC LEED-NC Application Guide for Multiple Buildings and On-Campus Building Projects for project scoring.

(4) Include coordination information relative to credits and indication of required/preferred/prohibited credits (if any). LEED Project Credit Guidance (a modified version of Appendix A of this document), is an appendix document included in the MILCON Transformation RFP templates. Edit this appendix to indicate Installation credit preferences (if any) and include it as an appendix to the Statement of Work. An Excel version of this appendix is available at http://en.sas.usace.army.mil , "Engineering Criteria".

(5) Include Owner's Project Requirements document for fundamental commissioning for each non-exempt facility type. The RFP Preparer is responsible for providing this document for each non-exempt building in the project. The COS creates and maintains this document for Army Standard Design buildings. A blank form for creating it is available at http://en.sas.usace.army.mil, "Engineering Criteria".

(6) Indicate who will provide Commissioning Authority services.

(7) Indicate USGBC registration/certification requirements, if any. If registration or certification is required, indicate who pays for it and who administers the online project. If registration is not required, allow the Contractor the option to register the project and use online templates.

(8) Indicate post-award LEED submittal and documentation requirements. Include the LEED 2.2 Documentation Requirements and Submittals Checklist for LEED-NC version 2.2 projects.

(9) Require the Contractor to provide a LEED AP assigned to the project through closeout.

(10) Require a Performance Capability proposal that includes the Contractor's past LEED experience, plan and internal monitoring system to meet LEED requirements and identification of key responsible personnel to include the LEED AP and Commissioning Authority, as applicable.

(11) Require a Technical proposal that includes the LEED Project Checklist indicating proposed credits to be earned.

(12) Require Contracting Officer advanced approval of any post-award changes to the credits indicated in the accepted proposal. Section 00800, Special Contract Requirements, should include the paragraph "Deviating from the Accepted Design."

b. COS CONTINUOUS BUILD PROGRAM (MULTIPLE CONTRACTOR) PROJECTS STRATEGY. See Appendix C for strategy, coordination issues, special requirements and sample RFP text for COS Continuous Build projects.

c. CONFLICTS. If the RFP includes mandatory or preferred floor plans or drawings, ensure that these drawings include the prerequisite recyclables storage areas. It is critical that the drawings do not conflict with any individual required credits (example - views credit required versus floor plan that could not earn the views credit). The same is true of the RFP written design requirements; the RFP must not contain requirements that preclude the ability to earn any individual required LEED credit or that in aggregate make meeting the overall score requirement not feasible. The RFP preparer is responsible for ensuring absence of these conflicts. During conformance review of technical proposals prior to award, resolve any conflicts between points indicated and other elements of the technical proposal. During conformance review , review all proposed Innovation in Design credits for feasibility and conformance to USGBC standards.

d. RFP PREPARATION PHASE LEED CREDIT DOCUMENTATION. Credit documentation from the RFP preparation phase is a standalone submittal separable from other RFP preparation phase project documentation and is combined with the final project LEED documentation by the PM.

e. ENDORSEMENT, REPORTING AND DOCUMENTATION. The LEED Project Checklist representing the project current rating resulting from the conformed proposal will be endorsed by the Installation DPW or the Reserve Component equivalent, the COS (if applicable), the DB contractor and the supporting Engineer District or Authorized Design and Construction Agent, reported per paragraph 7 and included in the project files.

12. Design

a. DB POST AWARD CONFERENCE/DBB PRE-DESIGN CONFERENCE. Conference agenda shall include discussion of roles and responsibilities, goals and compliance requirements, coordination issues, discussion of possible problem areas, and review of documentation requirements relating to LEED. Include these items in conference checklist of issues to cover.

b. DESIGN DOCUMENTS. LEED credit requirements shall be incorporated into drawings and specifications, including all required construction phase documentation (as defined in LEED Documentation Requirements and Submittals Checklist).

c. LEED SUPPORTING DOCUMENTATION. Supporting documentation is a separable portion of Design Analysis provided with each required design submittal. Each design submittal shall include the LEED Project Checklist identifying all credits claimed. Final design submittal for each portion of the work shall include all required design documentation (as defined in LEED Documentation Requirements and Submittals Checklist) for that portion of the work (example - all site credit design documentation with final site design).

d. DESIGN REVIEWS AND CREDIT AUDITS. The Design Agent and DPW will review and comment on the design and the LEED supporting documentation and may audit individual credits where deemed necessary. Design review conferences will include discussion of and resolution of all review comments to ensure consensus on achieving credit requirements and satisfactory documentation.

e. FINAL DESIGN SUBMITTAL. LEED will be used at 100% project design to establish a final design interim score and rating. The Design Agent will validate and coordinate consensus on the final design LEED score, including completeness and accuracy of supporting documentation and satisfactory resolution of all review comments. For DBB projects, the PM will coordinate formal endorsement, reporting and filing of final design score (paragraph 7).

13. Construction

a. PRECONSTRUCTION CONFERENCE. Conference agenda shall include discussion of roles and responsibilities, goals and compliance requirements, coordination issues, discussion of possible problem areas, and review of documentation requirements relating to LEED. Include these items in conference checklist of issues to cover.

b. LEED SUPPORTING DOCUMENTATION. The LEED Documentation Requirements and Submittals Checklist, which should be included in all contracts, indicates all required construction phase submittals and when they are due. The majority of the construction phase supporting documentation is a separable closeout submittal. Contractor shall update the documentation on at least a monthly basis and make it available for review by the PM, Construction Agent and DPW on the jobsite at all times during construction. Monthly or quarterly review of LEED documentation by Construction Agent staff is recommended.

(1) CREDIT AUDITS. The Construction Agent and Installation will review the LEED supporting documentation and may request additional audit documentation, where deemed necessary.

c. CONSTRUCTION AGENT. Construction Agent administration staff will be responsible for ensuring contractor compliance with contract requirements concerning sustainable design and development.

d. BENEFICIAL OCCUPANCY/CONSTRUCTION CLOSEOUT. LEED will be used at Beneficial Occupancy/Construction Closeout to verify the final design LEED score and establish a final LEED project rating. The PDT (Contractor, Installation, Construction Agent as a minimum) will meet to reach a consensus on the final LEED score. The Construction Agent will validate and coordinate consensus on the Contractor's final project LEED score, including completeness and accuracy of supporting documentation and satisfactory resolution of all review comments. The PM will coordinate endorsement, reporting and filing of the final project score (paragraph 7). The PM will conduct a pre-closeout LEED meeting to review the documentation, request any credit audit documentation and identify any corrections/missing items prior to the closeout LEED submittal.

14. Army LEED-NC Credit Guidance and Resources. Appendix A includes Army Required credits, Army recommendations regarding preference and avoidance of individual credits, discussion of Installation roles in support of individual credits, and issues PDTs need to be aware of relating to individual credits, including policy and legal requirements, costs and documentation resources.

15. Center of Standardization (COS) Continuous Build (Multiple Contractor) Projects. These projects typically involve at least two contractors – the COS Contractor for the building and a separate Contractor (hired by the geographic district) for the site work. The efforts of these

contractors must be coordinated to obtain the overall project score. Appendix C includes strategy, guidance and RFP sample text for these projects.

16. Training. See Appendix D for training information.

17. Frequently Asked Questions (FAQs). Appendix E contains responses to frequently asked questions on the implementation of LEED-NC.

18. Glossary. Appendix F is a glossary of commonly used words and acronyms.

Appendix A – Army LEED-NC Credit Guidance and Resources

This spreadsheet indicates Army required credits, Army recommendations regarding preferences and avoidance of individual credits, discussion of Installation roles in support of individual credits, and issues Project Delivery Teams need to be aware of relating to individual credits. The Resources section that follows provides references and resources that relate to LEED, including policy and legal requirements, design guides and documentation resources.

LEED Credit Paragraph	**LEED 2.2 Army Credit Guidance**	**R**equired - **P**referred - **A**void	Installation **P**rimary Responsibility - **S**upport Responsibility	
PAR	**FEATURE**			**REMARKS**
CATEGORY 1 - SUSTAINABLE SITES (14 POSSIBLE POINTS)				
SSPR1	Construction Activity Pollution Prevention (PREREQUISITE)	Rqd		All LEED prerequisites are required to be met. Related to compliance with 40 CFR 122.26 (Clean Water Act).
SS1	Site Selection		Prim	Credit is determined by Installation's site selection. Installation provides all necessary site data to support documentation of this credit.
SS2	Development Density & Community Connectivity - OPTION 1 DENSITY		Prim	Credit is determined by Installation's site selection. Installation provides all necessary site data to support documentation of this credit. Required development density is uncommon on Installations.
	Development Density & Community Connectivity - OPTION 2 CONNECTIVITY		Prim	Credit is determined by Installation's site selection. Installation provides all necessary site data to support documentation of this credit.

SS3	Brownfield Redevelopment		Prim	Credit is determined by Installation's site selection. Installation provides all necessary site data to support documentation of this credit. Remediation performed by others (outside of construction contract) qualifies for this credit. Selection of previously remediated sites does not qualify.
SS4.1	Alternative Transportation: Public Transportation Access		Prim	Credit is determined by Installation's site selection. Installation provides all necessary site data to support documentation of this credit.
SS4.2	Alternative Transportation: Bicycle Storage & Changing Rooms			Credit is easily earned at minimal first cost.
SS4.3	Alternative Transportation: Low Emitting & Fuel Efficient Vehicles - OPTION 1		Spt	Requires provision of vehicles, which cannot be purchased with construction funds. To earn this credit option, Installation must provide vehicles.
SS4.3	Alternative Transportation: Low Emitting & Fuel Efficient Vehicles - OPTION 2			Credit is easily earned at minimal first cost.
SS4.3	Alternative Transportation: Low Emitting & Fuel Efficient Vehicles - OPTION 3		Spt	Requires provision of vehicle refueling stations. Installation must support type of fuel and commit to maintaining/supporting refueling stations.
SS4.4	Alternative Transportation: Parking Capacity			Credit is easily earned at minimal first cost. Obtain minimum parking requirement from approved Army standard design, if applicable, or from Installation Design Guide (IDG). Army standard design parking requirements take precedence over IDG parking requirements.
SS5.1	Site Development: Protect or Restore Habitat		Prim	Ability to earn this credit depends greatly on size of project site and land made available within site boundary (but outside development footprint) that is made available for habitat.
SS5.2	Site Development: Maximize Open Space		Spt	AT/FP standoffs often create open space required to earn this credit. Installation must commit to not develop the open space to support credit documentation. Particularly for vehicle-oriented facilities requiring adjacent hardstand, earning this credit may require larger site boundary to obtain credit.
SS6.1	Stormwater Design: Quantity Control			Related to compliance with 40 CFR 122.26 (Clean Water Act).
SS6.2	Stormwater Design: Quality Control			
SS7.1	Heat Island Effect: Non-Roof		Spt	Provision of shade islands requires larger area for parking and must be considered in determination of site boundaries. Cost of pervious pavement must be identified and funded in programming.

SS7.2	Heat Island Effect: Roof		Spt	Installation Design Guide must support roof finish options that allow this credit. Coordinate with nearby airfield requirements, which may preclude this credit.
SS8	Light Pollution Reduction		Spt	Credit is easily earned at minimal first cost. Installation design guide must support exterior fixture type requirements. Installation must coordinate requirement with privatized utility providing exterior lighting, if applicable. May not be feasible for Access Control Points and other projects subject to Chapter 11 Security Lighting requirements of UFC 3-550-03FA.
CATEGORY 2 – WATER EFFICIENCY (5 POSSIBLE POINTS)				
WE1.1	Water Efficient Landscaping: Reduce by 50%		Spt	Installation Design Guide must support landscaping and irrigation requirements.
WE1.2	Water Efficient Landscaping: No Potable Water Use or No Irrigation		Spt	Installation Design Guide must support landscaping and irrigation requirements. Where irrigation is required, cost of rainwater collection systems must be identified and funded in programming.
WE2	Innovative Wastewater Technologies - OPTION 1		Spt	Where onsite non-potable water is used for sewage conveyance, cost of collection systems must be identified and funded in programming.
WE2	Innovative Wastewater Technologies - OPTION 2		Spt	Space for onsite treatment must be considered in determination of site boundaries.
WE3.1	Water Use Reduction: 20% Reduction	Pref		Related to Army mandate for waterless urinals beginning FY10.
WE3.2	Water Use Reduction: 30% Reduction			
CATEGORY 3 – ENERGY AND ATMOSPHERE (17 POSSIBLE POINTS)				
EAPR1	Fundamental Commissioning of the Building Energy Systems (PREREQUISITE)	Rqd		All LEED prerequisites are required to be met.
EAPR2	Minimum Energy Performance (PREREQUISITE)	Rqd		All LEED prerequisites are required to be met.
EAPR3	Fundamental Refrigerant Management (PREREQUISITE)	Rqd		All LEED prerequisites are required to be met.

EA1	Optimize Energy Performance	Pref		Approximately 6 of 10 possible points relate directly to required EPACT compliance. Project earning at least 2 points is a LEED prerequisite. Note the methods of calculating energy reduction vary between EPACT (measured in Btu/SF) and LEED (measured in kBtu/year, $/year). Projects that do not require USGBC certification may apply the EPACT energy use reduction percentage (instead of energy cost reduction percentage) to determine the points earned for the LEED Optimize Energy credit and may substitute EPACT calculations for LEED calculations. See paragraph 6.
EA2.1	On-Site Renewable Energy		Prim	Credit relates directly to EPACT compliance. Cost of renewable energy systems must be identified and funded in programming.
EA3	Enhanced Commissioning		Spt	This credit is not readily achievable. Estimated costs range from 2.5% to 5% of construction cost. The Commissioning Authority cannot be provided through the Contractor. Commissioning Authority activities begin during design phase and continue well beyond beneficial occupancy. In order to pursue this credit, support and funding for commissioning must be carefully coordinated. A separate contractual vehicle for Commissioning authority services is recommended.
EA4	Enhanced Refrigerant Management			Availability issues must be addressed.
EA5	Measurement & Verification		Spt	Credit relates to EPACT metering requirements. Provider and funding of post-occupancy activities must be coordinated. Cost must be identified and funded in programming if provided by construction contractor. Installation provides coordination data on EMCS system, if available.
EA6	Green Power		Prim	Credit is determined by Installation's purchase of green power. Installation provides necessary data to support documentation of this credit.
CATEGORY 4 – MATERIALS AND RESOURCES (13 POSSIBLE POINTS)				
MRPR1	Storage & Collection of Recyclables (PREREQUISITE)	Rqd	Spt	All LEED prerequisites are required to be met. Installation provides collection service and outside receptacle needs coordination. Special equipment, if needed, must be identified and funded in the project programming phase if provided by the construction contractor.
MR1.1	Building Reuse: Maintain 75% of Existing Walls, Floors & Roof		Prim	Initial project programming must address renovation versus new construction.

MR1.2	Building Reuse: Maintain 95% of Existing Walls, Floors & Roof		Prim	Initial project programming must address renovation versus new construction.
MR1.3	Building Reuse: Maintain 50% of Interior Non-Structural Elements		Prim	Initial project programming must address renovation versus new construction.
MR2.1	Construction Waste Management: Divert 50% From Disposal	Pref	Spt	Relates directly to Army waste diversion requirements and is required except where PDT can justify and document that 50% waste diversion is not economically feasible or significantly impacts required completion date. In this case Installation must obtain a waiver from the 50% diversion requirement and project must require a feasible diversion percentage. Installation provides on-post recycling facility coordination. Contractor diversion data is provided to Installation for inclusion in the Installation waste diversion reporting. Cost of earning this credit may be prohibitive depending on project location and availability of recycling facilities in the surrounding community. LEED project totals may include timber harvested by others and onsite demolition by others.
MR2.2	Construction Waste Management: Divert 75% From Disposal	Pref	Spt	Same as MR2.1.
MR3.1	Materials Reuse: 5%		Spt	Installation provides information on any salvage/refurbished materials available on-post for incorporation in project.
MR3.2	Materials Reuse: 10%		Spt	Installation provides information on any salvage/refurbished materials available on-post for incorporation in project.
MR4.1	Recycled Content: 10% (post-consumer + 1/2 pre-consumer)			Relates directly to EPA Comprehensive Procurement Guidelines (CPG) compliance and is highly preferred. Federal regulation as well as Federal, DOD and Army policies require purchase of products that contribute to this credit.
MR4.2	Recycled Content: 20% (post-consumer + 1/2 pre-consumer)			Relates directly to EPA CPG compliance and is highly preferred. Significant concrete and steel in project facilitate earning of this credit.
MR5.1	Regional Materials:10% Extracted, Processed & Manufactured Regionally			Because credit requires regional extraction, earning this credit depends on project location relative to extraction locations of required materials.

MR5.2	Regional Materials:20% Extracted, Processed & Manufactured Regionally			Because credit requires regional extraction, earning this credit depends on project location relative to extraction locations of required materials.
MR6	Rapidly Renewable Materials			Relates directly to USDA Federal Biobased Products Preferred Procurement Program (FB4P) materials compliance. Earning this credit is highly dependent on the nature of the project and the opportunities it presents for incorporation of rapidly renewable materials.
MR7	Certified Wood			Credit is easily earned at minimal first cost in projects that include very little wood. For projects with significant wood, additional cost may be prohibitive.
CATEGORY 5 – INDOOR ENVIRONMENTAL QUALITY (15 POSSIBLE POINTS)				
EQPR1	Minimum Indoor Air Quality (IAQ) Performance (PREREQUISITE)	Rqd		All LEED prerequisites are required to be met. Related to compliance with 10 CFR 434 (Federal Energy Code).
EQPR2	Environmental Tobacco Smoke (ETS) Control (PREREQUISITE)	Rqd		All LEED prerequisites are required to be met. Federal, DOD and Army policy require smoke free buildings, which meets the intent of this prerequisite. The Army currently allows an exemption to this policy for Army Family Housing, RCI housing, and individual rooms in barracks and other lodging where individuals can not be prevented from smoking. For these types of facilities, the requirements of LEED-NC 2.2 Option 3 must be met.
EQ1	Outdoor Air Delivery Monitoring			
EQ2	Increased Ventilation			Although for energy optimization credits the baseline and proposed energy model ventilation rates are the same, this credit will likely increase building overall energy consumption.
EQ3.1	Construction IAQ Management Plan: During Construction			Credit is easily earned at minimal first cost.
EQ3.2	Construction IAQ Management Plan: Before Occupancy			Credit is easily earned at minimal first cost. Flush out should be prohibited where humidity/moisture introduction is an issue. Construction schedule must accommodate activities required for this credit.
EQ4.1	Low Emitting Materials: Adhesives & Sealants			Credit is easily earned at minimal first cost.
EQ4.2	Low Emitting Materials: Paints & Coatings			Credit is easily earned at minimal first cost.

EQ4.3	Low Emitting Materials: Carpet Systems			Credit is easily earned at minimal first cost.
EQ4.4	Low Emitting Materials: Composite Wood & Agrifiber Products			Credit is easily earned at minimal first cost in projects that include very little wood. For projects with significant wood, additional cost/availabilty issues may be prohibitive.
EQ5	Indoor Chemical & Pollutant Source Control			Credit is easily earned at minimal first cost, except buildings with small HVAC units have difficulty providing MERV 13 filters.
EQ6.1	Controllability of Systems: Lighting			
EQ6.2	Controllability of Systems: Thermal Comfort			Feasibility and cost of provision of individual workstation comfort controls is highly dependent on project type.
EQ7.1	Thermal Comfort: Design			
EQ7.2	Thermal Comfort: Verification		Spt	Provider and funding of post-occupancy activities must be coordinated. Cost must be identified and funded in programming if provided by construction contractor.
EQ8.1	Daylight & Views: Daylight 75% of Spaces			Credit is easily earned at minimal first cost provided building design limitations do not preclude it.
EQ8.2	Daylight & Views: Views for 90% of Spaces			Credit is easily earned at minimal first cost provided building design limitations do not preclude it.
CATEGORY 6 – FACILITY DELIVERY PROCESS (5 POSSIBLE POINTS)				
IDc1.1	Innovation in Design			Several credits can earn an ID credit for exemplary performance. See LEED Reference Guide Exemplary Performance section under each credit. For example, 95% waste diversion qualifies for an ID credit.
IDc1.2	Innovation in Design			
IDc1.3	Innovation in Design			
IDc1.4	Innovation in Design			
IDc2	LEED Accredited Professional	Pref		LEED AP during design and construction is required by USACE.

Resources. The following are resources with web links, discussion of Federal and Army mandates and policies that relate to LEED, sources of design guidance and documentation tools to assist the PDT.

Federal Mandates

Federal Energy Policy Act of 2005. Requires energy efficiency improvements in all Federal facilities, as well as metering and increased use of renewable energy sources. Requirements are synopsized in ECB 2005-20, *Energy Policy Act of 2005 (Public Law 109-58) and how it affects all Federal Facilities*. (CECW-CE-D, 08 Dec 2005) http://www.wbdg.org/ccb/ARMYCOE/COEECB/ecb_2005_20.pdf

EPA, *Environmentally Preferable Purchasing* (EPP) Program (EPA), available through URL: http://www.epa.gov/oppt/epp/ . Resulting from Executive Order [EO] 13101 *Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition* (White House, 14 September 1998), it establishes basic guidelines for EPP as well as forms the basis for Comprehensive Procurement Guidelines (see below).

Comprehensive Procurement Guidelines (CPG), www.epa.gov/cpg.

The EPA publishes the Comprehensive Procurement Guidelines (CPGs), found in 40 CFR 247, that provides a list of products that must contain recovered material. **This is required regardless of whether the LEED recycled content credit is pursued or not.** Recommendations for the percentages of recovered materials are published in a companion document titled the Recovered Materials Advisory Notice (RMAN). Additional products are added every 2-3 years. The CPGs currently include several commonly used construction products (such as concrete, floor tiles, and roofing materials) and landscaping products (such as site furnishings and landscaping timbers).

EPA requires that the purchase of products listed on the CPG contain at least the recycled content indicated in the CPG when practicable. For every project, the designer must review the current CPG list, and unless designer determines that justification for non-use exists, ensure that the technical specifications require at least the recycled content indicated in the CPG. The following are considered adequate justifications for non-use:

a. The product does not meet appropriate performance standards.
b. The product is not available within a reasonable time frame.
c. The product is not available competitively (from two or more sources).
d. The product is only available at an unreasonable price (compared with a comparable non-recycled content product).

All Federal contracts that involve the use or purchase of EPA designated products must specify that the associated procurement requirements be met and must include applicable FAR provisions and clauses (FAR Part 23.4, *Use of Recovered Materials,* 52.223-4, *Recovered Material Certification,* 52.223-9, *Estimate of Percentage of Recovered Material Content for EPA-Designated Products)*. Note that although EPA designated recycled content products contribute to the LEED recycled content credit, satisfying this requirement does not guarantee that the project will reach the cumulative total required to earn the LEED credit.

USDA Federal Biobased Products Preferred Procurement Program (FB4P)
http://www.biobased.oce.usda.gov

The USDA has a program similar to the EPA CPG, found in 7 CFR 2902, that provides a list of designated products that must contain bio-based material with recommendations for the percentages of bio-based content. The rules for use of designated products are the same as EPA CPG. Currently the only designated construction product is roof coatings, however additional products may be added. For every project, the designer must review the current USDA designations for products applicable to the project, and if any are found, unless designer determines that justification for non-use exists, ensure that the technical specifications require at least the bio-based content indicated in the designation.

All Federal contracts that involve the use or purchase of USDA designated products must specify that the associated procurement requirements be met and must include applicable FAR provisions and clauses (currently not yet published). Note that although USDA designated bio-based content products contribute to the LEED rapidly renewable materials credit, satisfying this requirement does not guarantee that the project will reach the cumulative total required to earn the LEED credit.

FAR Subpart 23.8 Ozone-Depleting Substances

This federal policy requires that Federal agencies implement cost-effective programs to minimize the procurement of materials and substances that contribute to the depletion of stratospheric ozone and give preference to the procurement of alternative chemicals, products, and manufacturing processes that reduce overall risks to human health and the environment by lessening the depletion of ozone in the upper atmosphere.

All Federal contracts that involve the use or purchase of ozone-depleting and HVAC/refrigeration products must specify that the associated procurement requirements be met and must include applicable FAR provisions and clauses (52.223-11 *Ozone Depleting Substances*, 52.223-12 *Refrigeration Equipment and Air Conditioners*).

10 CFR Part 434*, Energy Code for New Federal Commercial and Multi-Family High Rise Residential Buildings*. www.wbdg.org Mandates/References, Federal Mandates, Code of Federal Regulations.

Requires federal projects comply with ASHRAE Standard 90.1, including ASHRAE Standard 62.1 – 2004, *Ventilation for Acceptable Indoor Air Quality* (ASHRAE, 2004)

10 CFR Part 435 *Energy Conservation Voluntary Performance Standards for New Buildings; Mandatory for Federal Buildings.* www.wbdg.org "Mandates/References", "Federal Mandates", "Code of Federal Regulations". Includes mandatory standards for federal residential facilities.

Department of Defense [DOD] Instruction [DODI] 1010.15, *Smoke-Free DOD Facilities Management* (Department of Defense, 02 Jan 2001). DoD implementation of EO 13058 *Protecting Federal Employees and the Public From Exposure to Tobacco Smoke in the Federal Workplace* (White House, 13 August 1997).

Army Policy and Mandates

Memorandum, OASA(I&E), Subject: Sustainable Design and Development Policy Update - SPiRiT to LEED Transition (05 January 2006) - http://www.hqda.army.mil/acsimweb/fd/virlibrary/virtualLibrary/docs/SPIRIT_to_LEED_Memo_Jan_06.pdf Implementing guidance for USACE is contained in ECB 2006-2 *Sustainable Design and Development (SDD)* (19 May 2006) www.wbdg.org/ccb "Documents Library", "ARMY/COE Criteria", "Engineering and Construction Bulletins".

Memorandum, DAIM-ZA, Subject: *Sustainable Management of Waste in Military Construction, Renovation, and Demolition Activities* (06 February 2006) http://www.hqda.army.mil/acsimweb/fd/docs/C&D_encl.pdf

Mandates that all new construction, renovation and demolition projects include contract performance requirements to divert as a minimum 50% of non-hazardous construction and demolition (C&D) debris from landfill disposal. 50% Construction Demolition waste disposal is mentioned specifically, however a clause was added to provide an exception to this requirement if project economics are not cost effective or if the diversion would cause a delay in the timely completion of a mission critical project

ECB 2006-7R Army Standard for Urinals (09 AUG2006) www.wbdg.org/ccb "Documents Library", "ARMY/COE Criteria", "Engineering and Construction Bulletins".. Mandates waterless urinals beginning FY10.

Army Energy Campaign Plan: http://army-energy.hqda.pentagon.mil/programs/plan.asp Sets forth Army long-term goals and Installation activities for achieving them.

Army Installation Design Standards (Headquarters, Department of the Army, [HQDA], 3 May 2004) https://www.idsarmy.hqda.pentagon.mil/army_ids/ Template and guidance for Army Installation Design Guides.

Federal Leadership in Heating Performance and Sustainable Buildings Memorandum of Understanding. Signatory agencies commit to federal leadership in the design, construction, and operation of High-Performance and Sustainable Buildings. A major element of this strategy is the implementation of common strategies for planning, acquiring, siting, designing, building, operating, and maintaining High Performance and Sustainable Buildings. See *Technical Guidance for Implementing the Federal Leadership in Heating Performance and Sustainable Buildings Memorandum of Understanding*, http://www.wbdg.org/sustainableEO/mou.php

United States Green Building Council/LEED

USGBC Website – http://www.usgbc.org

LEED-NC (New Construction) v.2.2 Rating System, October 2005 -- https://www.usgbc.org/ShowFile.aspx?DocumentID=1095

LEED-NC v.2.2 Registered Project Checklist -- https://www.usgbc.org/FileHandling/show_general_file.asp?DocumentID=1096

LEED-NC v.2.2 Reference Guide – Available by purchase from the USGBC at: http://www.usgbc.org/Store/PublicationsList.aspx?CMSPageID=1518

LEED Letter Templates – Use of LEED Letter Templates for projects not registered with USGBC is a copyright infringement and is not permitted. Samples of the templates are available for review only at:

http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1447. (Fully functional access to LEED On-Line is only available to projects registered with the USGBC.)

LEED Credit Interpretations (CIRs) – Available on the members only side of the USGBC website. Click 'My Account' from the USGBC main web page (log-in and look for CIRs under 'My Resources.' Also available through LEED Online (registered projects).

LEED Application Guide for Multiple Buildings and On-Campus Building Projects https://www.usgbc.org/FileHandling/show_general_file.asp?DocumentID=1097. Provides direction in applying LEED-NC v2.1 and v2.2 to projects in a campus or multi-building setting such as corporate campuses, college campuses, and government installations (i.e. there is one owner or common property management and control).

Whole Building Design Guide (WBDG) www.wbdg.org

The WBDG is a web-based portal providing government and industry practitioners one-stop access to up-to-date information on a wide range of building-related guidance, criteria and technology from a 'whole buildings' perspective. Development of the WBDG is a collaborative effort among federal agencies, private sector companies, non-profit organizations and educational institutions. In addition to a wide range of design information, WBDG includes links to federal Executive Orders, Code of Federal Regulations and Construction Criteria Base (CCB). CCB is an electronic library of construction guide specifications, manuals, standards and many other essential criteria documents from participating federal agencies.

Whole Building Design Guide (WBDG): *Design Guidance*, http://www.wbdg.org/design/

Whole Building Design Guide (WBDG): *Tools - LEED® Version 2.1 Credit / WBDG Resource Page Matrix,* http://www.wbdg.org/tools/leed.php?a=1

WBDG, *Project Management – Project Planning & Development – Building Commissioning*, http://www.wbdg.org/project/buildingcomm.php

WBDG, *Project Management*, http://www.wbdg.org/project/index.php

WBDG, *Tools – LEED-DOD Antiterrorism Standards Tool*, http://www.wbdg.org/tools/leed_atfp_rp.php?l=ss-2

Federal Green Construction Guide for Specifiers, http://www.wbdg.org/design/greenspec.php. Guide specifications developed by EPA for several green products and systems.

General Resources

Sustainable Design - General

Office of the Federal Environmental Executive. www.ofee.gov OFEE's mission is to advocate, coordinate, and assist environmental efforts of the federal community in waste prevention, recycling, affirmative procurement of CPG items, and the acquisition of recycled and environmentally preferable products and services. General reference with links.

USACE TECHNICAL EXCELLENCE NETWORK (TEN) Sustainable Design and Development Community of Practice website. https://ten.usace.army.mil/TechExNet.aspx?p=s&a=AREASOFEXPERTISE;522 The goal of the TEN website is to provide USACE team members a common set of technical tools, eliminate information overflow, and allow individuals to resolve technical issues, whether the answer lies within their CoP or from another area of expertise.

Engineer Knowledge Online (EKO) Portal Sustainable Design and Development (SDD) Resource https://eko.usace.army.mil/fa/sdd/ Contains several links to SDD resources.

ERDC/CERL TR 06 1 (Draft), *Implementation of the U. S. Green Building Council's LEED® as the Army's Green Building Rating System*, January 2006 -- http://www.cecer.army.mil/techreports/ERDC-CERL-TR-06-1/ERDC-CERL-TR-06-1.pdf This work compares the SPiRiT and LEED rating systems and makes recommendations regarding further development and implementation, including the adoption of LEED® NC (New Construction) without modification or supplement. This work also reviewed 40 sample projects to reveal patterns of successful LEED® use within the Army.

DA Pamphlet [DA PAM] 200-1, *Environmental Protection and Enhancemen*t (HQDA, 17 January 2002) www.army.mil/usapa/epubs/pdf/p200_1.pdf Provides detailed guidance to support implementation of AR 200-1 to include: water resources management, oil and hazardous substances spills, hazardous materials management, hazardous and solid waste management, air pollution, environmental noise management, asbestos management, radon reduction, pollution prevention, environmental restoration, environmental quality technology, automated environmental management systems, the Army environmental program in foreign countries, and other miscellaneous topics.
Greensourcemag, http://greensource.construction.com/Default.asp. Online magazine devoted to green building including products, technologies, case studies, news, projects.

Site Development

Engineering Pamphlet 1110-1-16 [EP], *Engineering and Design—Handbook for the Preparation of Storm Water Pollution Prevention Plans for Construction Activities* (HQUSACE, 28 February 1997). www.usace.army.mil/publications/eng-pamphlets/ep1110-1-16/toc.htm

UFC 3-210-06A, *Site Planning and Design* (by reference TM 5-803-14 Site Planning and Design) (HQDA, 16 January 2004). www.wbdg.org/ccb "Documents Library", "DoD Criteria", "Unified Facilities Criteria".

UFC 3-210-10, *Design: Low Impact Development Manual* (HQDA, 25 October 2004) www.wbdg.org/ccb "Documents Library", "DoD Criteria", "Unified Facilities Criteria".

UFC 3-230-14A, *Evaluation Criteria Guide for Water Pollution Prevention Control and Abatement Programs* (HQDA, 16 January 2004) www.wbdg.org/ccb "Documents Library", "DoD Criteria", "Unified Facilities Criteria".

Energy

DOD Instruction 4170.11, *Installation Energy Management* (DOD, 13 October 2004). http://army-energy.hqda.pentagon.mil/policies/4170_11.asp Provides procedures for DOD installation energy management and pertains to all phases of administration, planning, programming, budgeting, operations, maintenance, training and material acquisition activities that impact the supply, reliability and consumption of energy at DOD installations. All UFCs are available at www.wbdg.org/ccb "Documents Library", "DoD Criteria", "Unified Facilities Criteria".

UFC 3-400-01, *Design Energy Conservation* (HQDA, 5 July 2002).

UFC 3-401-01FA, *Utility Monitoring Control Systems* (HQDA, 1 March 2005).

UFC 3-410-01FA, *Design: Heating, Ventilating, and Air Conditioning* (HQDA, 15 May 2003).

UFC 3-440-01, *Design: Active Solar Preheat Systems* (HQDA, 14 June 2002).

UFC 3-440-03N, *Design: Passive Solar Buildings* (HQDA, 16 January 2004).

UFC 3-440-04N, *Design: Solar Heating of Buildings and Domestic Hot Water* (HQDA, 16 January 2004).

UFC 3-440-06, *Cooling Buildings by Natural Ventilation* (HQDA, 16 January 2004).

UFC 4-826-10, *Refrigeration Systems for Cold Storage* (HQDA, 10 July 2002).

Commissioning

ECB 2005-14, *Building Commissioning Versus Corps of Engineers Military Design/Construction Process* (HQUSACE, 6 September 2005). www.wbdg.org/ccb "Documents Library", "ARMY/COE Criteria", "Engineering and Construction Bulletins".

Engineer Regulation 1110-345-723 [ER], *Systems Commissioning Procedures* (HQUSACE, 31 July 1995).

Materials

UFC 1-900-01, Selection of Methods for the Reduction, Reuse, and Recycling of Demolition Waste (DA, 1 December 2002).

SPiRiT

Sustainable Project Rating Tool (SPiRiT) available at https://eko.usace.army.mil/fa/sdd/sdd_spirit/

SPiRiT Facility Points Summary/Project Checklist available at https://eko.usace.army.mil/fa/sdd/sdd_spirit/

ERDC/CERL SR-04-28, Sustainable Project Rating Tool (SPiRiT) version 1.4.1 - Documentation Guide, September 2004 -- http://www.cecer.army.mil/techreports/Schneider_SPiRiT_Documentation__SR/Schneider_SPiRiT_Documentation__SR.pdf

ERDC/CERL TR-04-19, SPiRiT Scoring Through Self-Assessment Charrettes

'SPiRiT Policy Archive' on EKO (reference above).

Design/Programming/Master Planning

Unified Facilities Criteria [UFC] 1-200-01, Design: General Building Requirements (Incorporates International Building Code (IBC) 2000) (DA, 20 June 2005).

UFC 2-000-02AN, *Installation Master Planning* (by reference TM 5-803-1 Installation Master Planning) (HQDA, 1 March 2005).

UFC 3-210-01A, *Design: Area Planning, Site Planning, and Design* (by reference TI 804-01 Area Planning, Site Planning, and Design) (DA, 16 Jan 2004).

ECB 2002-13, *Design Charrette Guidance for Army MILCON Programs* (Directorate of Civil Works, Army Corps of Engineers [HQUSACE], 6 September 2002).

ECB 2003-8, *DD Form 1391 Preparation Planning Charrette Process* (Directorate of Civil Works, HQUSACE, 6 November 2003).

ECB 2006-14 *Importance of the Application of Partnering Concepts to MILCON and Civil Works Missions* (CECW-CE, 01 Nov 2006) http://www.wbdg.org/ccb/ARMYCOE/COEECB/ecb 2006 14.pdf

ECB 2006-13 *MILCON Transformation – Model RFP Guides* (CECW-E, 28 Sep 2006) http://www.wbdg.org/ccb/ARMYCOE/COEECB/ecb_2006_13.pdf

UFC 3-450-01, *Design: Noise and Vibration Control* (by reference TM 5-805-4, Noise and Vibration Control) (HQDA, 15 May 2003).

UFC 4-010-01, *DOD Minimum Antiterrorism Standards for Buildings* (HQDA, 08 October 2003).

Unified Facilities Guide Specifications (UFGS) www.wbdg.org/ccb

UFGS are non-proprietary guide specifications covering a broad range of products and systems and incorporating agency–specific guidance and many sustainability updates. They are used and maintained by USACE, NAVFAC, AFCESA and NASA. Differences between USACE and Navy goals and approaches to specifying SDD are addressed in the UFGS with tailoring options. **USACE specifiers must always be sure to use the USACE tailoring option when one exists** (will be noted in introductory specifier notes of the section if applicable).

UFGS are in the process of being updated to include Specifier notes relating to all current EPA CPG product designations, but this process is not complete yet. **Designer MUST address EPA CPG requirements in specifications on a product-by-product basis.**

USACE Design/Bid/Build (DBB) projects DO NOT specify regional source requirements on a product-by-product basis. Doing so in a non-proprietary specification requires excessive product research to satisfy this credit with adequate competition and interferes with bidder's use of preferred sources. If the credit is pursued, cumulative totals strategy is determined by the construction contractor (using estimated costs and quantities) and construction contractor confirms strategy during construction.

UFGS 01 33 29 *LEED ™ Documentation.* This section includes overview and documentation requirements plus credit-specific requirements. It contains 2 compliance options for cumulative materials credits; strategy determined by designer and confirmed by construction contractor or strategy determined and confirmed by construction contractor. **Note that this section is for design-bid-build use and should NOT be included in a design –build RFP without local editing for design-build.**

UFGS 01 62 35 *Recycled/Recovered Materials*. For DBB use (minor editing required for Design/Build (DB) use). This section addresses EPA CPG compliance requirements. It MUST be included in all DB RFPs and all DBB project specifications.

UFGS 02 42 00 *Construction and Demolition Waste Management.* For DB and DBB use. This section includes requirement for waste management plan, diversion requirements and reporting. Coordinate with waste management plan requirements contained in UFGS 01 57 20.00 10 ENVIRONMENTAL PROTECTION.

UFGS 23 08 00.00 10 *Commissioning of HVAC Systems*. This section includes qualifications, standards and documentation, also includes several test checklists. Because it is limited to HVAC only it **does not** by itself satisfy the LEED fundamental commissioning requirement. Commissioning of other LEED required systems and coordination of documentation associated with this additional commissioning must be addressed.

LEED Credit Documentation Tools

Commissioning Plan Document for LEED Fundamental Commissioning USACE template available at http://en.sas.usace.army.mil, "Engineering Criteria" for Commissioning Authority to edit to create project-specific document.

Owners Project Requirements Document for LEED Fundamental Commissioning. USACE template available at http://en.sas.usace.army.mil, "Engineering Criteria" for Design Agent/Owner to edit to create project-specific document. Completed document should be included in DB RFPs or provided to Design Team at start of design.

Basis of Design Document for LEED Fundamental Commissioning. USACE template available at http://en.sas.usace.army.mil, "Engineering Criteria" for Designer of Record to edit to create project-specific document.

LEED 2.2 Documentation Requirements and Submittal Checklist. A submittal checklist, identifying all required documentation for each credit (basic and audit documentation) is available at http://en.sas.usace.army.mil, "Engineering Criteria" for PDT use. This checklist assists Contractors and Government reviewers and Contract administration personnel in ensuring documentation is complete when LEED 2.2 is used. This checklist requires local editing for use with SPIRIT or LEED 2.1. LEED 2.2 Documentation Requirements and Submittals Checklist is for Government-validated projects only, and the Government does not imply that meeting the requirements of this document is equivalent to meeting USGBC certification requirements.

SPIRIT/LEED 2.1/LEED 2.2 Project Checklists. Project Checklists for SPIRIT, LEED 2.1 and LEED 2.2 are available at http://en.sas.usace.army.mil, "Engineering Criteria" for PDT use.

LEED Strategy Tables. For use in COS/GD multiple contractor RFPs to establish each contractor's responsibilities when site work and building are accomplished by separate contractors. Available at http://en.sas.usace.army.mil, "Engineering Criteria".

LEED 2.2 Glazing Factor Tabulation Spreadsheet available at http://en.sas.usace.army.mil, "Engineering Criteria" for PDT use in support of Daylighting credit.

LEED NC Application Guide for Multiple Buildings and On-Campus Projects Guidance Spreadsheet available at http://en.sas.usace.army.mil, "Engineering Criteria" for PDT use in support of multiple-facility project scoring coordination. Summarizes the individual versus aggregate scoring of credits guidance in the document.

Appendix B – RFP Sample Text (Design/Build, Single Contractor)

The USACE MILCON Transformation (MT) RFP section templates are coordinated with HQUSACE for sustainable design content and reflect the guidance contained in this Implementation Guide. The text excerpts below highlight key requirements to include in design-build RFPs. These excerpts are current as of 15 December 07. When preparing a single-contractor design-build RFP, incorporate the current MT template text for these key requirements. Instructions on access to and use of the MT RFP templates is in the MT RFP Implementation Guide located at https://ff.cecer.army.mil/rfp_wizard/. For multiple-contractor projects, such as Center of Standardization (COS) Continuous Build Process projects, see Appendix C.

SECTION 00 22 10 - PHASE 1 OF 2 PHASE DESIGN-BUILD SELECTION PROCEDURES

- *Require information on past team experience with LEED*

Under TAB B – FACTOR 1 - SPECIALIZED EXPERIENCE, SUBMISSION REQUIREMENTS, SUPPLEMENTAL NARRATIVE, include:

The offeror should describe any previous teaming experience between current team members, if not described in the project list. Design Firms should describe their experience on LEED or SPiRiT projects, if not included on the project list. Offeror may describe design-build experience on other type projects. The above information is limited to projects that are well underway or that have been completed and turned over no longer than the past five years preceding the date of this solicitation.

- *Give evaluation preference to teams demonstrating successful USGBC project certification.*

Under EVALUATION CRITERIA, include:

The Prime Contractor or design firms, if design is not to be self-performed, must demonstrate qualifications and experience in sustainable design and development and design, based on project experience on projects that have achieved US Green Building Council's LEED certification or project experience on completed Corps of engineers design-build projects that were validated as having achieving LEED silver rating or the Corps of Engineer's SPiRiT Rating Tool for a satisfactory rating. Additional consideration will be given if both the Prime and its design firms demonstrate qualifications and experience on LEED. More consideration will be given to LEED experience with full documentation requirements than for SPiRiT experience.

In the form COMPANY SPECIALIZED EXPERIENCE, DESIGN FIRM OR IN-HOUSE DESIGN CAPABILITY (attachment 3), include:

Summary of Your Role in Design of this Project, including implementing LEED or SPiRiT.

SECTION 00 22 20 - PHASE 2 DESIGN-BUILD SELECTION PROCEDURES AND BASIS OF AWARD

- *Require a project LEED Checklist showing which points will be earned.*

Under PHASE 2 PROPOSAL CONTENTS AND RELATED EVALUATION FACTORS, SUBFACTORS AND ELEMENTS, include:

TAB D – FACTOR 4 - SUSTAINABILITY REQUIREMENTS

Submission Requirements:

The Offeror shall acknowledge that it understands the contract requirements for sustainable design and construction and that the final project will achieve a LEED Silver rating. The Offeror shall submit LEED-NC Registered Project Checklist demonstrating how it will achieve the Silver LEED rating for each non-exempt

facility. If the offeror proposes a higher LEED rating than silver, the proposal shall describe whether or not it involves additional costs and clearly indicate if such costs would detract from higher rated factors herein, such as functionality, quality of materials and systems, site work, etc.

Evaluation Criteria:

- *Give evaluation preference to technical proposals that include Army and Installation preferences (indicated in LEED Project Credit Guidance appendix).*

This is a GO/NO-GO factor. All requirements identified as mandatory in Section 01010 or elsewhere in the Solicitation must be included and the proposal must meet the requirements of the LEED-NC requirements for a Silver rating. The Government will provide additional evaluation consideration for proposals which include LEED points identified as preferred. The Government does not desire to pay more to obtain a higher LEED rating, such as Gold, if the additional cost would detract from the higher rated factors, herein.

SECTION 00 73 00 – SPECIAL CONTRACT REQUIREMENTS

- *Include language controlling post-award changes.*

Ensure the following is included:

DEVIATING FROM THE ACCEPTED DESIGN (JUN 02)

(a) The Contractor shall obtain the approval of the Designer of Record and the Government's concurrence for any Contractor proposed revision to the professionally stamped and sealed and Government reviewed and concurred design, before proceeding with the revision.

(b) The Government reserves the right to non-concur with any revision to the design, which may impact furniture, furnishings, equipment selections or operations decisions that were made, based on the reviewed and concurred design.

(c) Any revision to the design, which deviates from the contract requirements (i.e., the Request for Proposals and the accepted proposal), will require a modification, pursuant to the Changes clause, in addition to Government concurrence. The Government reserves the right to disapprove such a revision.

(d) Unless the Government initiates a change to the contract requirements, or the Government determines that the Government furnished design criteria are incorrect and must be revised, any Contractor initiated proposed change to the contract requirements, which results in additional cost, shall strictly be at the Contractor's expense.

(e) The Contractor shall track all approved revisions to the reviewed and accepted design and shall incorporate them into the as-built design documentation, in accordance with agreed procedures. The Designer of Record shall document its professional concurrence on the as-builts for any revisions in the stamped and sealed drawings and specifications.

SECTION 01 10 00 - STATEMENT OF WORK

- *Include Application Guide for Multiple Buildings and On-Campus Building Projects for multiple building and multiple Contractor projects.*

Under PARA 4 APPLICABLE CRITERIA/ APPLICABLE INDUSTRY CRITERIA, include:

U.S. GREEN BUILDING COUNCIL (USGBC)
LEED-NC
Green Building Rating System for New Construction & Major Renovations, Version 2.2
Application Guide for Multiple Buildings and On-Campus Building Projects

- *Include LEED requirements in commissioning.*

Under PARA 5 TECHNICAL REQUIREMENTS, MECHANICAL, include:

COMMISSIONING: Commission all HVAC systems and equipment, including controls, and all systems requiring commissioning for LEED Fundamental commissioning, in accordance with ASHRAE Guideline 1 and LEED. The Contractor shall hire the Commissioning Authority, certified as a Commissioning Authority by AABC, NEBB, or TABB, as described in Guideline 1. The Contracting Officer's Representative will act as the Owner's representative in performance of duties spelled out under OWNER in Annex A2 of ASHRAE Guideline 1.

- *Identify minimum score*
- *Require LEED-NC Application Guide for Multiple Buildings and On-Campus Building Projects application for multiple building projects.*
- *Allow optional USGBC registration*
- *Require LEED points associated with EPACT compliance (see current MT RFP templates for correct wording of ENERGY CONSERVATION paragraph).*
- *Mandate 50% waste diversion except where cost prohibitive per MT RFP Implementation guidance.*
- *Indicate availability of USACE commissioning document templates for contractor's optional use.*

Under PARA 5 TECHNICAL REQUIREMENTS, SUSTAINABLE DESIGN, include the following:

STANDARDS AND CODES: Sustainable design shall conform to APPLICABLE CRITERIA.

LEED RATING AND VALIDATION: The minimum requirement for the project is to achieve Silver level of Leadership in Energy and Environmental Design (LEED) rating. Each nonexempt facility must achieve this level. The LEED-NC Application Guide for Multiple Buildings and On-Campus Building Projects applies to all projects with multiple facilities. See Paragraph PROJECT-SPECIFIC REQUIREMENTS for facilities that are exempt from the minimum Silver rating. Except where indicated otherwise in Paragraph PROJECT-SPECIFIC REQUIREMENTS, the project is not required to be registered with or certified by USGBC for validation of credits earned; validation of credits will be accomplished by the Government. Contractor has the option to register the project and use LEED online Letter Templates. In this case, payment of fees and administration of the online project will be by the Contractor. Solutions which conserve energy, improve livability, and can be justified by life cycle cost analysis as cost effective are encouraged.

OPTIMIZE ENERGY PERFORMANCE: Project must earn, as a minimum, the points associated with compliance with paragraph ENERGY CONSERVATION.

COMMISSIONING. See paragraph 5.8.5 COMMISSIONING for commissioning requirements. USACE templates for Basis of Design document and Commissioning Plan document are available at http://en.sas.usace.army.mil (click on Engineering Criteria) and may be used at Contractor's option.

Under PARA 5 TECHNICAL REQUIREMENTS, CONSTRUCTION AND DEMOLITION (C&D) WASTE MANAGEMENT, include the following as applicable per specifier instructions (see also MT RFP implementation instructions). Also be sure to include the MT ENVIRONMENTAL PROTECTION section:

[NOTE TO SPECIFIER: IF IT IS DETERMINED, JUSTIFIED AND DOCUMENTED BY THE PDT THAT 50%WASTE DIVERSION IS NOT ECONOMICALY FEASIBLE OR SIGNIFICANTLY IMPACTS REQUIRED

COMPLETION DATE, THE PDT WILL USE ALTERNATE PARAGRAPH BELOW, WITH THE CALCULATED MAXIMUM FEASIBLE DIVERSION RATE NOTED.]

CONSTRUCTION AND DEMOLITION (C&D) WASTE MANAGEMENT: Achievement of 50% diversion, by weight, of all non-hazardous C&D waste debris is required. Reuse of excess soils, recycling of vegetation, alternative daily cover and wood to energy are not considered diversion in this context, however the Contractor must track it and report it. A waste management plan and waste diversion reports are required, as detailed in Section ENVIRONMENTAL PROTECTION.

[ALTERNATE SELECTION WHEN THE INSTALLATION OBTAINS A WAIVER FROM THE MANDATORY 50% WASTE REDUCTION REQUIREMENT:]

CONSTRUCTION AND DEMOLITION (C&D) WASTE MANAGEMENT: Achievement of [ ]% diversion, by weight, of all non-hazardous C&D waste debris is required, however, 50% or better is highly preferred. Reuse of excess soils, recycling of vegetation, alternative daily cover and wood to energy are not considered diversion in this context, however the Contractor must track it and report it. A waste management plan and waste diversion reports are required, as detailed in Section ENVIRONMENTAL PROTECTION.

- *Identify exempt facilities*
- *If USGBC registration is required, indicate and identify who pays fees and who administers website.*
- *RFP preparer completes Owner's Project Requirements document for all non-exempt facilities in the project and includes in RFP appendix. This is a document that is required for LEED documentation for Fundamental Commissioning prerequisite and must be prepared by Owner's representative. Recommend do not repeat information contained in the RFP in this document, but instead refer to the Statement of Work when possible.*
- *Indicate status of all credits that are earned based on site selection and green power. Provide information on Installation recycling facilities if available.*
- *Include LEED Project Credit Guidance document as an appendix. Coordinate with Installation and fill in the Project Preference Ranking column to reflect any Installation preferences. It is up to the Installation how they want to indicate rankings. It is not necessary to rank all credits or the number needed to attain LEED goal. Recommend use multiple 1s, 2s and 3s if needed to create categories of preference. If Installation has no preference rankings, include the document in the RFP as is.*

Under PARA 6 PROJECT-SPECIFIC REQUIREMENTS, SUSTAINABLE DESIGN, include the following (edit bracketed text):

6.14.1 LEED MINIMUM RATING EXEMPT FACILITIES: The following facilities are exempt from the minimum Silver requirement: [ ] [none].

6.14.2 CREDIT VALIDATION: [Although USGBC certification is not required, the project is required to be registered with USGBC and use the LEED Letter Templates. Payment of fees and administration of the online project will be by [the Contractor.] [the Government.]]

6.14.3 COMMISSIONING: See Appendix [ ] for Owner's Project Requirements document(s).

6.14.4 LEED CREDITS COORDINATION. The following information is provided relative to Sustainable Sites and other credits.

SS Credit 1 Site Selection:

Project site [is] [is not] considered prime farmland.

[Project site is five feet or more above 100-year flood elevation.] [Delineation of 100-year flood elevation is shown on site drawings provided in this CONTRACT.]

[Project site contains no habitat for threatened or endangered species.] [Delineation of threatened or endangered species habitat is shown on site drawings provided in this CONTRACT.]

[No portion of project site lies within 100 feet of any water, wetlands or areas of special concern.] [Delineation of water, wetlands and areas of special concern is shown on site drawings provided in this CONTRACT.]

Project site [was not] [was] previously used as public parkland.

SS Credit 2 Development Density & Community Connectivity. Project site [does] [does not] meet the criteria for this credit.

SS Credit 3 Brownfield Redevelopment. Project site [does] [does not] meet the criteria for this credit.

SS Credit 4.1 Public Transportation Access. Project site [does] [does not] meet the criteria for this credit.

EA Credit 6 Green Power. 50% of the project's electricity [will] [will not] be provided through an Installation renewable energy contract.

MR Credit 2 Construction Waste Management. The Installation [does not have an on-post recycling facility available for Contractor's use.] [has an on-post recycling facility. Contact [ ] for information about materials accepted.]

6.14.5 LEED Credit Preferences, Guidance and Resources. See Appendix L LEED Project Credit Guidance for supplemental information relating to individual credits.

SECTION 01 33 16 - DESIGN AFTER AWARD

- *Require LEED Accredited Professional involvement through closeout*
- *Include detailed design documentation requirements. Include LEED 2.2 Documentation Requirements and Submittals Checklist as an Attachment.*
- *Permit use of EPACT calculations for Optimize Energy credit and permit deletion of Optimize Energy calculations if a USACE-developed prescriptive path is followed ONLY in projects not seeking USGBC certification.*

Under INTERIM DESIGN REQUIREMENTS, include the following:

LEED Documentation:
The Contractor shall assign a LEED Accredited Professional, responsible to track LEED planning, performance and documentation for each LEED credit through construction closeout. Incorporate LEED credits in the plans, specifications and design analyses. Develop LEED supporting documentation as a separable portion of the Design Analysis and provide with each required design submittal. Include the LEED Project checklist for each nonexempt facility (one checklist may be provided for multiple facilities in

accordance with the LEED-NC Application Guide for Multiple Buildings and On-Campus Building Projects and the LEED 2.2 Documentation Requirements and Submittals Checklist (Attachment E, herein) with each submittal. Final design submittal for each portion of the work must include all required design documentation relating to that portion of work (example - all site credit design documents with final site design). Submittal requirements are as indicated in Attachment E, LEED 2.2 Documentation Requirements and Submittals Checklist. Submit all documentation at final design (for fast-track projects with multiple final design submittals, this shall be at the last scheduled final design submittal). All project documentation related to LEED shall conform to USGBC requirements for both content and format, including audit requirements and be separate from other design analyses. The Contractor shall maintain and update the LEED documentation throughout project progress. The designers of record shall prepare and present LEED documentation with calculations and other data necessary to substantiate and support all design documents submitted. The Government may audit any or all individual credits. Provide the additional documentation marked “Provide for Credit Audit Only” in LEED 2.2 Documentation Requirements and Submittals Checklist if requested for any individual credit. Audit documentation is not required unless requested.

EPACT Compliance Calculations.
EPACT compliance is measured as a percentage reduction in energy use. LEED Optimize Energy credit points are earned based on percentage reduction in energy cost. If the project DOES NOT require USGBC certification, it may substitute the EPACT energy use reduction percentage for energy cost reduction percentage to determine the LEED Optimize Energy points earned and it may substitute EPACT calculations for LEED calculations for this credit. If the project DOES NOT require USGBC certification and Section STATEMENT OF WORK includes a prescriptive path option for EPACT compliance for a building type, each building of that type that complies fully with its prescriptive path option may take the LEED Optimize Energy points that correspond to the energy use reduction percentage stated by the prescriptive path and LEED supporting calculations are not required. Projects that require USGBC certification must earn Optimize Energy points in accordance with LEED and must provide LEED supporting calculations (energy cost reduction) for this credit.

Under INTERIM BUILDING DESIGN CONTENTS, include the following:

LEED Project Checklist indicating credits claimed, all required design phase supporting documentation and completed submittals checklist.

Under DESIGN ANALYSIS, include the following:

All disciplines review the LEED design analysis in conjunction with their discipline-specific design analysis; include a copy of the separable LEED design analysis in all design analysis submittals.

Under AS-BUILT DOCUMENTS, include the following:

Provide as-built drawings and specifications in accordance with Section 01780, CONTRACT CLOSEOUT. Update LEED design phase documentation during construction as needed to reflect construction changes and advancing project completion status (example - Commissioning Plan updates during construction phase) and include updated LEED documentation in construction closeout submittal.

SECTION 01 78 02.00 10 - CONSTRUCTION CLOSEOUT

- *Require current documentation available at jobsite and closeout submittal.*
- *Include pre-closeout and closeout review meetings.*

Under OTHER AS-BUILT DOCUMENTS, include the following:

LEED Documentation

Update LEED documentation on at least a monthly basis and have it available for review by the Government on the jobsite at all times during construction. Submit the final LEED Project Checklist, final LEED Submittals Checklist and complete project documentation, verifying the final LEED score and establishing the final rating. Provide full support to the validation review process, including credit audits.

Include the following:

LEED REVIEW MEETINGS
Pre-Closeout Meeting. Approximately 30 days before submittal of LEED closeout documentation, the Contractor and the Government's project delivery team (including Installation representative) will meet to review the documentation, determine which, if any, credits will be audited and identify any corrections/missing items prior to the closeout LEED documentation submittal.

Approximately 14 days after submittal of LEED closeout documentation, the Contractor and the Government's project delivery team (including Installation representative) will meet to review the LEED closeout documentation. The review conference will include discussion of and resolution of all review comments to ensure consensus on achievement of credits and satisfactory documentation. At the review conference a final score will be determined and endorsed in writing by all parties.

Appendix C – Center Of Standardization (COS) Continuous Build Process Projects (Multiple Contractor)

Standard Operating Procedure
USACE-COS-10
LEED Strategy and Coordination Activities for
Center Of Standardization (COS) Continuous Build Process (Multiple Contractor) Projects
01 August 07

1. **Purpose:** This Standard Operating Procedure will serve to identify a standardized approach and process for coordinating LEED scores and documentation for design and construction of multiple-contractor projects where a building and it's site work are accomplished by different contractors .

2. **Applicability:** This applies to all CONUS MILCON districts.

3. **References:**

a) AR 415-15, ARMY MILITARY CONSTRUCTION AND NONAPPROPRIATED-FUNDED CONSTRUCTION PROGRAM DEVELOPMENT AND EXECUTION

b) Memorandum from CECW-CE dtd 6 Mar 06, Subject: Realignment/Establishment of Centers of Standardization (COS), FY06.

4. **Authority:** This SOP is established to define the LEED strategy and coordination activities of the geographic district and COS for design and construction of multiple-contractor projects, IAW reference 3b) above and the COS Management Plan.

5. **Introduction:** Center of Standardization (COS) Continuous Build Process projects are characterized by having site work and building(s) for a project accomplished by separate contractors. Because the project LEED score includes the work of both building and site contractors, these projects present unique coordination challenges. The objective of this document is to provide a standardized approach for internal coordination that ensures the requirement is met without over-spending, minimizes documentation costs and provides a consistent format for contract language and LEED documentation. This document contains the recommended strategy and coordination process as well as sample RFP text for both a COS building contract and a geographic district (GD) site contract.

6. **Requirements and Responsibility:** The minimum LEED requirements are unchanged. The GD is responsible for the project achieving its minimum goal and for all associated documentation and reporting, including reporting requirements in the event that a project fails to meet its minimum requirement. The COS must provide necessary support to the GD to meet this obligation.

7. **Pre-Design Coordination Activities:**

A. Define the LEED Combined Project. The objective in defining the project for LEED purposes is to simplify the LEED documentation effort to the greatest extent possible. In general, define the LEED Combined Project in terms of the site contractor's scope. This represents the simplest option and should be used because it eliminates the need for the site contractor to

maintain separate tracking and documentation relating to portions of his work. The Application Guide for Multiple Building and On-Campus Projects, by USGBC, provides instructions on how to define individual credit compliance and prepare one set of project documentation for projects containing multiple buildings. This document will be used for all combined projects with multiple buildings regardless of the number of contracts. It also applies to individual contracts for multiple buildings (example one COS task order for multiple standard design buildings).

The GD identifies all separate contracts included in the LEED Combined Project and coordinates this information with all parties preparing contracts/task orders for the Combined Project.

B. Develop Single Score LEED Strategy Table for Each Building in the Combined Project. For each Combined Project, COS and GD collaborate to complete the LEED Strategy Table for each standard design and the GD completes the LEED Strategy table for each non-standard design building in the Combined Project, indicating a minimum of 33 points, which are selected based on feasibility and cost. A total score of 34 or 35 is recommended to keep the project compliant in the event of inadvertent loss of a point during project execution. To comply with the MILCON Transformation intent of giving the Contractor maximum latitude, the table has columns indicating whether substitution of another point for the one indicated is permitted. In general, substitution is permitted for all points except combined points, where one contractor's failure to perform loses the point for the combined project.

i. There are five basic types of LEED points:

   a. Points based on site selection. These are determined by site selection and are identified by the GD. Substitutions of these points are generally N/A.

   b. Site points. These are earned by site design and are identified by the GD. Substitution of other site points is permitted.

   c. Building points. These are earned by building design and are identified by the COS for standard designs. Substitution of other building points is permitted.

   d. Combined building/site points. These require both building and site design elements and both portions must be accomplished to earn the point. If a combined building/site point is selected in the LEED Strategy Table, substitution is not permitted by either site or building contractor and the point is, in effect, mandatory for both contractors.

   e. Combined aggregate materials points. These require a percentage achievement based on combined project total (building(s) and site) materials cost. Each contractor must contribute to earn the point. The LEED overall percentage requirement must also be divided up between the site and building contractors to reflect a reasonable contribution from each for the individual points, based on scopes of work. For example, site work typically has a greater contribution to the Regional Sources point than the building contribution. Conversely, the building typically has a greater contribution to the Recycled Content point than the site work contribution. If the point is selected in the LEED Strategy Table, substitution is not permitted by either site or building contractor and the point is, in effect, mandatory for both contractors. Additionally, the LEED Strategy Table must indicate, in the Remarks column, each contractor's required percentage contribution.

ii. The procedure for developing the LEED Strategy is as follows:

a. COS creates and maintains a master LEED Strategy Table for each standard design with all building points represented in the standard design filled in as well as proposed combined building/site points and combined aggregate points that are usually feasible. See attached sample, which will be used for format of all LEED Strategy Tables (available at http://en.sas.usace.army.mil, click on Engineering Criteria).

b. GD creates a LEED Strategy Table for each non-standard design building in the Combined Project.

c. As part of initial project coordination, COS forwards the master table for the standard design to the GD for coordination and input.

d. GD fills in the tables for site selection points, site points and combined building/site points that GD considers feasible. If GD is preparing site work contract, these are points that GD commits to earning.

e. GD fills in the tables for combined aggregate materials points that GD considers feasible and indicates the appropriate division of responsibilities between contractors, based on Combined Project scope. If GD is preparing site work contract, these are points that GD commits to earning.

f. GD coordinates all of the tables in the Combined Project for consistency with respect to the site contractor's requirements for site work as a whole. For example, the stormwater quantity point will be documented for the entire site, so the strategy tables should all match with respect to this point (see Application Guide for Multiple Building and On-Campus Projects).

g. GD reviews planning/parametric estimate charette report and coordinates with COS to ensure strategy table reflects specific features programmed for the project and the division of responsibilities for these features (example PV panels). This will be reflected in construction funding distribution.

h. If, due to adverse site conditions, the GD must propose added COS building points to bring the project up to the minimum score, the GD will bring this to the COS attention and the COS will confirm the added building point commitment. This will be reflected in construction funding distribution.

iii. The completed LEED Strategy Table does the following:

a. Defines the number of points each building and site contractor must earn.

b. Defines the division of responsibilities between building and site contractors for combined and aggregate materials points.

c. Defines each contractor's latitude for substitutions of other points for those indicated in the table.

d. Contains all of the information in one document that is included by appendix to the applicable solicitations. Each building-only contract includes the completed LEED Strategy Table for that building. Each site work contract includes the completed LEED Strategy Tables for all buildings that the site contract provides site work for, including strategy tables for buildings included in the site work contract (contractor is instructed to perform both building CTR and site CTR portions of the work for that building).

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8. Generating Project Documentation:

i. To simplify determining individual contractor compliance, each contractor is responsible only for generating LEED documentation for his portion of the work. No contractor is required to modify or include any LEED data from other contractors.

ii. To ensure compatible formats, all contractors are required to use LEED Letter Templates, which are available only to USGBC LEED Registered projects.

iii. Individual contractors use downloaded sets of LEED letter templates to which they add contractor name, project name/number and individual building identification as applicable. Each contractor furnishes electronic copies of templates and supporting attachments at completion and acceptance of final design, periodically as determined by the Government during construction, and at closeout.

iv. The GD compiles and summarizes the documentation from all contractors for the project record. The COS compiles the documentation of the standard design for future use.

9. USGBC Registered Projects:

i. USGBC Registrations: Although USGBC certification (independent validation by USGBC) of projects using project funds is not permitted, registration of projects with USGBC is permitted and is required to obtain legal use of the LEED Letter Templates. For conformity of documentation format among all contractors in a combined project and for multiple iterations of standard designs, all contractors will use the LEED Letter Templates. The following USGBC registrations will be funded using project funds (design or construction funds):

a. Site Work Project. For each Combined Project (site work and buildings accomplished by separate contractors) the project providing the site work is registered with USGBC and this registration is used to download LEED letter templates for the GD site work contract (including buildings included in the site work contract) and other non-COS building contracts, if any, associated with the site work. This registration is where the GD creates summaries of the aggregate materials data from all contractors in the Combined Project and, if the GD chooses to, it may also be used by the GD to compile the LEED documentation from all contractors in the Combined Project.

b. Standard Design. Each standard design is registered with USGBC and this registration is used to download LEED letter templates for the COS standard design building-only contract(s). This registration is where the COS compiles both general documentation for all applications of the standard design and individual project-specific documentation. The COS makes this data available for subsequent applications of the standard design to minimize duplication of documentation.

ii. When to Register: Projects should be registered before design commences so that the templates are available to the design team from the start of design. If the GD documents site selection points during RFP preparation, the project should be registered during RFP preparation.

iii. Administration of USGBC Registered Projects: For every registered project, a Project Administrator must be identified. The Project Administrator controls access to the LEED Letter Templates and controls save/modify data rights in the online templates. Only one

Project Administrator is allowed per registered project, but Project Administrator designation may be transferred from one person to another.

a. Site Work Project. Regardless of who registers the project, the GD must administer the website during construction phase. During design either the site design/build contractor, the PM or a member of the team responsible for design technical conformance may be the website administrator. This individual will provide downloaded letter templates with instructions to contractor(s) and will compile approved design phase data from all contractors. During construction the website administrator is a member of the team responsible for construction administration. This individual will prepare summaries of all contractor aggregate materials data provided periodically during construction (at a frequency determined by the construction admin team) and will compile construction submittals from all contractors (using LEED On-line for this if GD chooses to). Each GD will determine internally who to designate as the Project Administrator for design phase and for construction phase.

b. Standard Design. Regardless of who registers the standard design, the COS must administer the website using in-house personnel. The only exception to this is if a standard design will always be executed by the same single design/build contractor (in which case the COS may elect to make the DB contractor responsible for administration of the standard design website). During design the appropriate website administrator is the PM or a member of the team responsible for standard design development and design technical conformance. This individual will provide downloaded letter templates with instructions to COS contractor(s) and will compile design phase and selected construction phase data from all COS contractors. Each COS will determine internally who to designate as the Project Administrator for design phase and for construction phase.

9. Reviewing Project Documentation:

iv. Design Phase. The entity responsible for design technical conformance review includes LEED design phase documentation in technical review. At completion and acceptance of final design submittals the contractor furnishes electronic copies of LEED documentation, which will be provided to both the GD and COS design phase registered project website administrators.

v. Construction Phase. The GD monitors the work through construction to closeout, which includes periodic monitoring of LEED documentation, summarizing aggregate materials data from all contractors and review and acceptance of closeout documentation of all contractors. The GD also furnishes standard design contractor construction phase data to the COS as requested.

Attachments:

Sample MILCON Transformation RFP template text

Sample RFP Appendix LEED Requirements for Multiple Contractor Combined Projects

Sample RFP Appendix LEED Strategy Table

Sample MILCON Transformation RFP Template Text

(Note: new text options indicated herein will be added to the MT RFP templates)

- *Incorporate all elements in RFP for single contractor project (Appendix B) with the following changes:*

SECTION 01 10 00 - STATEMENT OF WORK

- *Require use of LEED Letter Templates and establish who will administer online registered project/registered standard design.*

Under PARA 6 PROJECT-SPECIFIC REQUIREMENTS, SUSTAINABLE DESIGN:

- *Select paragraph below if the project includes COS standard design buildings and a single contractor is doing all buildings and site work in the project. Edit for either Contractor or Government fees and administration (PDT choice).*

6.14.2 Credit Validation: Although USGBC certification is not required, the project is required to be registered with USGBC and use the LEED Letter Templates. Registration of the project and payment of fees will be [by the Contractor] [by the Government]. Administration of the online project will be [by the Contractor] [by the Government].

- *Select paragraph below if the project includes the site work for COS standard design buildings by others. Include bracketed text in first sentence as applicable if project also includes standard design and/or non-standard design buildings in addition to site work for COS buildings by others. Registration and fees may be either by Contractor or Government (PDT choice). Administration may be by Government or shared - Contractor administers until construction phase, when Government must take over administration in order to compile and summarize data from the other contractors (PDT choice).*

6.14.2 Credit Validation: The project is the site work [and building(s)] portion of a multiple contractor Combined Project. Although USGBC certification is not required, the project is required to be registered with USGBC and use the LEED Letter Templates. Registration and payment of fees will be by the [Contractor] [Government]. Administration of the online project will be [by the Government] [shared between the Contractor and the Government per Appendix LEED Requirements for Multiple Contractor Combined Projects].

- *Select paragraph below if the project includes COS standard design building(s) only and site work is by others. If only a single contractor will ever be working on all the projects for a particular standard design, the COS may require the Contractor to register the standard design as part of the initial project and administer the online standard design on all subsequent projects. If multiple contractors will be working on projects for a particular standard design, registration and administration must be by the Government (COS).*

6.14.2 Credit Validation: The project is a standard design building(s) portion of a multiple contractor Combined Project. Although USGBC certification is not required, the project is required to be registered with USGBC and use the LEED Letter Templates. Registration of the standard design and payment of fees will be by the [Government] [Contractor]. Administration of the online project will be [by the Contractor] [by the Government].

- *Select paragraph below if the project includes non-standard design building(s) only and site work and COS standard design buildings are by others. Edit for either Contractor or Government fees and administration (PDT choice).*

6.14.2 Credit Validation: The project is a non-standard design building(s) portion of a multiple contractor Combined Project. Although USGBC certification is not required, the project is required to be registered with USGBC and use the LEED Letter Templates. Registration of the project and payment of fees will be [by the Contractor] [by the Government]. Administration of the online project will be [by the Contractor] [by the Government].

- *If site work and building(s) are accomplished by separate contractors, identify the project as a Combined Project*
- *If site work and building(s) are accomplished by separate contractors, include general instructions on how LEED is handled for Combined Projects (standard text appendix LEED Requirements for Multiple Contractor Combined Projects),*
- *If site work and building(s) are accomplished by separate contractors, include LEED Strategy Tables, which indicate the status of site selection points, establish the number of points each contractor must earn relative to each building, and establish each contractor's requirements for shared building/site points.*

Under PARA 6 PROJECT-SPECIFIC REQUIREMENTS, SUSTAINABLE DESIGN:

- *If site work and building(s) are by separate contractors, delete the LEED CREDITS COORDINATION paragraph and add the MULTIPLE CONTRACTOR COMBINED PROJECT paragraph below (edit to indicate whether buildings or site is by others and identify the buildings by others.).*
- *If site work and building(s) are by separate contractors, include the completed LEED Strategy Table for that building in each buildings-only project .Include all of the completed LEED Strategy Tables in the site work contract, including tables for buildings included in the site work contract (instructions in standard appendix tells contractor he is both Building CTR and Site CTR for buildings included in site work contract). District preparing site work project needs to make sure that the site contractor's responsibilities for overall site points and aggregate materials points are the same in all of the completed LEED Strategy Tables in a given project. A sample LEED Strategy table excel spreadsheet is available at http://en.sas.usace.army.mil, "Engineering Criteria".*
- *If site work and building(s) are by separate contractors, include LEED Requirements for Multiple Contractor Combined Projects appendix (include in both building-only project(s) and site work project).*

6.14.6 Multiple Contractor Combined Project. When site work and building(s) are accomplished by separate contractors, it is a Combined Project for purposes of LEED scoring and documentation. This project is part of a Combined Project that includes [site work] [and] [ ] [building(s)] accomplished by [a separate contractor] [separate contractors]. The LEED-NC Application Guide for Multiple Buildings and On-Campus Projects applies to all Combined Projects that include multiple facilities. The minimum overall Combined Project requirement is to achieve Silver level of Leadership in Energy and Environmental Design (LEED) rating for all nonexempt buildings plus site. See Appendix LEED Requirements for Multiple Contractor Combined Projects and Appendix LEED Strategy Table(s) for special requirements for this project.

Sample RFP Appendix LEED Requirements for Multiple Contractor Combined Projects

LEED Requirements for Multiple Contractor Combined Projects (31 August 07)

When site work and building(s) for a project are accomplished by separate contractors, it is referred to as a Combined Project for purposes of LEED scoring and documentation and the following is required:

- LEED points relating to site work must be combined with the LEED points for each building to arrive at a single LEED Combined Project score.
- LEED points having both building requirements and site requirements (combined bldg/site points) must be coordinated between the contractors.
- LEED aggregate materials points must be coordinated between the contractors and a division of responsibilities for each contractor's required contribution to the point must be developed.
- LEED Project documentation from separate contractors must be combined.

Combined Project Definition. See paragraph MULTIPLE CONTRACTOR COMBINED PROJECT in paragraph PROJECT SPECIFIC REQUIREMENTS of the Statement of Work for general information about this Combined Project.

LEED Points Coordination. See LEED Strategy Table(s) for the total number of points each contractor is responsible for obtaining, for special requirements relating to combined building/site points and for each contractor's requirement relating to aggregate materials points for this Combined Project. Each contractor providing a building is referred to as Building CTR and Site CTR refers to the contractor providing the site development. For each building included in the site work contract, the site work contractor is both Building CTR and Site CTR for that building. Aggregate materials percentages indicated in the table(s) are percentage of that contractor's materials total.

Point Substitutions. During preparation of the Proposal, each contractor is free to substitute other LEED points for those indicated in the LEED Strategy Table(s), except points marked "NO" in the "Building CTR Substitutions Permitted" column may not be deleted or added by substitution by building contractor and points marked "NO" in the "Site CTR Substitutions Permitted" column may not be deleted or added by substitution by site contractor. Credit substitutions after award are not permitted except with the advance approval of the Contracting Officer.

LEED Documentation. Each contractor is responsible for developing all project LEED documentation demonstrating compliance for their portion of the work and must utilize the LEED Letter Templates. Each contractor is responsible for updating construction phase LEED documentation at least monthly until construction closeout. No CTR will duplicate the data of another CTR within their own documentation.

Registered Site Work Project. LEED documentation for all contractors in the Combined Project will be compiled at the USGBC registered site work project by the Government. Responsibility for payment of registration fees and administration of the online project will be as indicated in paragraph CREDIT VALIDATION in paragraph PROJECT SPECIFIC REQUIREMENTS in the Statement of Work. When administration of the online project is indicated as shared between the Contractor and the Government, the Contractor will administer the project until design completion and the Government will administer the project during construction.
Each CTR will populate and maintain a complete downloaded set of the LEED letter templates for their portion of the work only. Each contractor will include the contractor name, project name and individual building description as applicable on each template. The LEED letter templates are copyright protected and shall be used only for this specific contract.

At completion and acceptance of design phase submittals the Government will compile the completed templates and their attachments. All CTRs will furnish electronic copies of their completed templates and their attachments for this purpose.

Periodically during construction and at construction closeout the Government will compile all CTRs current construction phase templates and their attachments. All CTRs will furnish electronic copies of the current updated templates and their attachments for this purpose when requested and at closeout.

The Government will utilize the registered site work project letter templates for summarizing the data from all contractors and for assessment of overall status of the Combined Project.

Registered Standard Designs. LEED documentation for design phase submittals for each standard design will be compiled at USGBC registered standard designs (one registration per standard design). Responsibility for payment of registration fees and administration of the online project will be as indicated in paragraph CREDIT VALIDATION in paragraph PROJECT SPECIFIC REQUIREMENTS in the Statement of Work. Each CTR will populate and maintain a complete downloaded set of the LEED letter templates for their portion of the work only. Each contractor will include the contractor name, project name and individual building description as applicable on each template. The LEED letter templates are copyright protected and shall be used only for this specific contract.

At completion and acceptance of design phase submittals and selected construction phase submittals for the standard design the completed templates and their attachments will be uploaded to the registered standard design as attachments to the blank letter templates. Standard design Building CTRs will furnish electronic copies of the completed templates and their attachments for this purpose.

The Government will make the completed templates available to subsequent standard design projects in order to reduce duplication of documentation effort to the extent possible.

Sample RFP Appendix LEED Strategy Table is available at http://en.sas.usace.army.mil, “Engineering Criteria”.

Appendix D – Training

Training of key Army personnel, PDTs, and Army facilities stakeholders, whether as orientation during the course of project execution, or via separate venues, provides the foundation and detailed knowledge for Army project stakeholders to effectively implement LEED as the sustainable building rating tool for Army new construction projects.

Orientation/Basic SDD SPiRiT/LEED -- Basic orientation training covering SDD, LEED-NC should be provided to the PDT as a minimum at the Planning and Code 3 Design Charrettes.

USGBC LEED®-NC Introductory Training -- In addition, key installation personnel and PDT members should take the USGBC's LEED 101: Getting Started with Green. This half-day workshop provides an introduction to the USGB, an overview of LEED-NC and is intended to address an audience with very little knowledge of green and sustainable building design practices. Attendees learn the benefits of green building practices, the fundamental details of the LEED Rating System and philosophy, the project certification process and applicable LEED Resources.

LEED®-NC Technical Review Training – Select installation personnel and PDT members should take USGBC LEED Technical Reviews: Credit Requirements & Processes These full-day workshops offer an in-depth review of LEED technical requirements to those interested in working on a LEED project or becoming a LEED Accredited Professional. The LEED for New Construction workshop provides an in-depth review of the technical requirements of LEED-NC, tools and information needed to incorporate green building practices into a project, and case studies of successful strategies for earning LEED credits and achieving project certification.

Army Facilities Stakeholders LEED Professional Accreditation -- Select installation personnel and PDT members should obtain USGBC LEED Professional Accreditation to establish critical expertise on LEED for Army facilities projects. The accreditation exam ensures that the successful candidate has the knowledge and skills necessary to participate in the design process, to support and encourage integrated design, and to streamline LEED application and certification. It further tests candidate understanding of green building practices and principles, and familiarity with LEED requirements, resources, and processes. Information on the exam may be obtained at:

LEED-AP training is available through the USGBC. For more information visit URL: https://www.usgbc.org/DisplayPage.aspx?CategoryID=127

LEED AP (Accredited Professional) Web Training ("Essentials of LEED Professional Accreditation" is available at: http://www.usgbc.org/DisplayPage.aspx?CMSPageID=286&

LEED-AP Testing. Information is available at: http://www.prometric.com/Default.htm

LEED for General Contractors/Construction Managers -- Select installation personnel and PDT members should obtain training in the effective construction of sustainable projects. The USGBC LEED Topic Module tailored, half-day session LEED for General Contractors/Construction Managers provides instruction on LEED as it applies to general contractors and construction managers, emphasizing strategies for project documentation and tracking project costs. It also addresses the intent of the technical requirements as they apply to the design and construction team, specifically addressing construction credits: materials, resources, and indoor environmental quality. USGBC is developing a web-based version of this course and is coordinating with USACE on possible development of a USACE-specific training module.

USACE Centrally Funded Web-based Training. USACE periodically purchases blocks of USGBC web-based training courses and offers districts the opportunity to participate in this free

training on a first-come-first served basis. HQUSACE will contact districts with a request to provide candidates for this training when it is available.

Appendix E -- Frequently Asked Questions (FAQs) – Responses to frequently asked questions on the implementation of LEED-NC.

What Is LEED? (Leadership in Energy and Environmental Design)
The nonprofit U. S. Green Building Council (USGBC) is the nation's foremost coalition of leaders from across the building industry working to promote buildings that are environmentally responsible, profitable and healthy places to live and work. The USGBC has developed a suite of nationally recognized LEED green building rating systems which are available for new construction, existing buildings, and commercial interiors. LEED rating tools are in pilot testing for core & shell developments, homes, and neighborhood developments. LEED information is available at http://www.usgbc.org. The USGBC introductory PowerPoint presentation is available at URL: https://www.usgbc.org/Docs/Resources/usgbc_intro.ppt.

Why Transition from SPiRiT to LEED?
LEED (Leadership in Energy and Environmental Design) is being used by the Air Force, Navy, GSA, state and local governments, and commercial projects. SPiRiT is based on an older version of LEED and is out-of-date. It is more cost effective to switch to the commercial standard (LEED-NC) that meets Army needs and to take advantage of the resources that the USGBC offers. Also, the infrastructure community is already comfortable applying LEED to commercial projects.

What happens to SPiRiT?
The Army will continue to use SPiRiT and achieve the GOLD rating level for all Army Family Housing new construction projects and homes built under the Residential Communities Initiative (RCI) until the Army adopts LEED-H (Homes) by the USGBC. Other projects prior to the FY08 program (except MILCON Transformation projects) will continue to use SPiRiT and achieve GOLD rating, unless they can achieve the LEED-NC 2.2 SILVER rating within the program amount.
http://www.hqda.army.mil/acsimweb/fd/virlibrary/virtualLibrary/docs/SPIRIT_to_LEED_Memo_Jan_06.pdf

I work for the Army Corps of Engineers at an Installation – Am I a member of the USGBC? Do I qualify for USGBC Member Discounts?
Yes. All civilian employees of and uniformed members of the Army are full members of the USGBC under an Army membership and qualify for all discounts and benefits. Contact Richard Schneider at 217-373-6752 or Richard.L.Schneider@erdc.usace.army.mil for information on the USGBC or committee correspondence. You need the Army membership number to create a login on the "Member's Only" portion of the USGBC website, and to take advantage of the Member's Only resources and discounts.
Any USGBC member can join LEED committees as a corresponding member to receive the latest information on development of new rating tools and, comments on application of the draft rating tools to Army projects would be appreciated.. Contact Richard Schneider at 217-373-6752 or richard.l.schneider@erdc.usace.army.mil for information on the USGBC or committee correspondence.

Does each project team need to have a LEED Accredited Professional?
Yes – both design and construction teams. Project teams with a LEED Accredited Professional automatically earn one LEED credit, and tend to create projects with higher LEED ratings. Hire project consultants (Planners, Architect/Engineers, Design/Build Teams and Constructors) who can assign a LEED Accredited Professional to the project to help insure the Army SDD rating will be met.

Do I have to become a LEED Accredited Professional?
No it is not required that all Army project team members become LEED accredited professionals, but it is highly recommended, and would be a good career move.
Corps of Engineers, Installation personnel, and project team members are encouraged to take the "LEED Accreditation" courses and exams offered by the U. S. Green Building Council to become LEED accredited professionals, so they can contribute their expertise to projects.

How do I become a LEED Accredited Professional?
LEED Professional Accreditation is awarded to building industry practitioners who successfully pass a comprehensive exam which tests for a detailed knowledge of LEED project certification requirements and processes and a command of integrated design principles. Visit URL:

http://www.usgbc.org/DisplayPage.aspx?CategoryID=1306 to learn more about how you can become a LEED Accredited Professional. Information on the web-based training class "Essentials of LEED Professional Accreditation" is available at URL: http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1449& Army team members wishing to become LEED Accredited Professionals should first register in the "Members Only" portion of the USGBC website to take advantage of the available discounts and resources.

Does USGBC have web training? How much would it cost?

The only currently available online class is "Essentials of LEED Professional Accreditation." Pricing: Members: $150, Nonmembers: $200. For more information please see URL: http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1449& (See ECB 2006-6 "Essentials of LEED Professional Accreditation" On-Line Training (CECW-CE, 20 June 2006) at URL: http://www.wbdg.org/ccb/ARMYCOE/COEECB/ecb_2006_6.pdf

Do we have to pay money to "register" Army projects with the USGBC?

The Army is not requiring project teams to register projects with the USGBC. While there is no Army requirement to register a project with the USGBC, optional registration will allow the PDT to make use of 'LEED-Online' and on-line 'LEED Letter Templates' to document and track progress towards LEED goals. Documenting the project on-line allows anyone with the access information, whether a PDT member, or at HQ USACE, IMA, ACSIM, etc., to review project information. It will also offer the additional advantage of USGBC support in credit interpretation and rulings. Registration for LEED-NC costs $450 for members and $600 for non-members as of 15 Nov 2005. If the PDT chooses to register a project with the USGBC, any associated fees for project registration will be paid from project design or construction funds. For information on registering projects with the USGBC please visit: http://www.usgbc.org/DisplayPage.aspx?CMSPageID=65&

Do we have to pay the USGBC to "Certify" Army projects to determine the final LEED rating? Are you aware of any information on the cost to LEED certify a building?

Except for projects selected by Army (see paragraph 5), Army does not require certification of projects by USGBC and expects USACE to perform this service (government validation). A project owner seeking public recognition for their project's sustainability features can do so through the USGBC's certification process. They register their project for a fee with the USGBC, design and build it to meet LEED requirements, while documenting the earned credits using LEED Letter Templates. Project teams then pay an additional certification fee and submit the LEED Letter Templates and other required submittals to the USGBC for evaluation. The USGBC then rates or "certifies" the project based on its performance as 'Certified,' 'Silver,' 'Gold,' or Platinum,' with Certified being the minimum performance level. Fees for project certification vary by the size of the building. The USGBC recently launched a series of refinements and innovations that significantly reduce the time, cost and paperwork of achieving LEED certification, which is called LEED Online. For more information on project certification with the USGBC please visit: http://www.usgbc.org/DisplayPage.aspx?CMSPageID=64
For more information on the costs to achieve LEED ratings and comply with LEED documentation requirements, please see ERDC CERL Technical Report "Implementation of the U. S. Green Building Council's LEED® as the Army's Green Building Rating System" at URL: http://www.cecer.army.mil/td/tips/pub/details.cfm?PUBID=5574 or the cost references at the USGBC URL: https://www.usgbc.org/DisplayPage.aspx?CMSPageID=78& USGBC certification fee structure as of November 2005 is at URL: http://www.usgbc.org/FileHandling/show_general_file.asp?DocumentID=1108

As construction agent to the Air Force, what does the Air Force expect for their LEED certification?

Unless the customer requires the project team to obtain USGBC certification, you can follow the same Government-validation process that you would for Army projects. Register the project and use the LEED Letter Templates if the customer is contemplating seeking USGBC project certification in the future.

What is the difference between "Certifying" a project and the LEED "Certified" rating? Can a person become "LEED Certified?"

USGBC "Certifies" projects after they have been registered, designed and built to meet LEED requirements, and the project team has submitted LEED Letter Templates and other submittals to USGBC to prove which credits have been earned. There is a certification fee which must be paid to the USGBC, which varies depending on the size of the building.

"Certified" is the lowest acceptable LEED Rating. Silver, Gold and Platinum are increasingly higher LEED ratings. In the LEED world, buildings are certified and people are accredited.

What is the applicability of these requirements to DoD funded projects located on Army Installations? Does LEED apply to tenant facilities? How do I report the rating results if it doesn't?
The LEED Silver policy applies to ALL new facilities constructed on Army installations and in the Army's military construction program regardless of fund source (see paragraph 3). The LEED ratings for all projects will be reported in the USACE P2 Project database. If the Installation and tenant have agreed to something other than the Army minimum requirement, in P2 under 'SPiRiT / LEED Rating' indicate "N/A". Under 'SPiRiT/LEED Comments' indicate what was agreed and the project's achievement relative to the agreed-upon requirement.

What are the applicability rules for non-vertical construction projects?
Horizontal construction, such as ranges, roads and airfields, will utilize LEED and obtain a project rating that incorporates sustainable design to the extent feasible, for example by minimizing site impact, incorporating recycled materials, utilization of permeable pavements, etc., however these projects are exempt from the minimum rating requirement that applies to vertical construction. Climate-controlled buildings in horizontal construction projects are NOT included in this exemption and shall achieve the minimum LEED-NC rating.

What are the applicability rules for renovations and additions?
See paragraph 3. A combined renovation and addition project can be scored as a single project using LEED-NC.

How do we score projects with multiple buildings/building types? How do we do the P2 data entry for projects with multiple buildings/building types?
See paragraph 8. Projects with multiple building types shall achieve and document the required LEED Rating level for each of the building types using the LEED-NC Application Guide for Multiple Buildings and On-Campus Building Projects to generate a single project score. The **LEED-NC Application Guide for Multiple Buildings and On-Campus Building Projects** is available at URL: https://www.usgbc.org/FileHandling/show_general_file.asp?DocumentID=1097. The purpose of the AGMBC is to provide direction in applying LEED-NC v2.1 and v2.2 to projects in a campus or multi-building setting such as corporate campuses, college campuses, and government installations (i.e. there is one owner or common property management and control). It is intended for projects where several buildings are constructed at once, in phases, or a single building is constructed in a setting of existing buildings with common ownership or planning with the ability to share amenities or common design features. See paragraph 7 for reporting.

Where do I get a copy of the current LEED®-NC Registered Project Checklist?
Please visit the USGBC website to find the LEED-NC 2.2 Checklist at: http://www.usgbc.org/DisplayPage.aspx?CMSPageID=220& or download the file at https://www.usgbc.org/FileHandling/show_general_file.asp?DocumentID=1096

How can I get a copy of the LEED-NC 2.2 Reference Guide?
While free would be nice, that is not the case here. However, all civilian employees of and uniformed members of the Army are full members of the USGBC under an Army membership and qualify for all discounts and benefits, so we can get the member price. Current prices are:
USGBC Members: $150, Non-members: $200.
LEED Workshop registrants: $125 (when purchased with registration)
Combined with NCv2.1 Reference Guide: $250 (members) or $300 (non-members). To order LEED Reference Guides, please visit URL: http://www.usgbc.org/DisplayPage.aspx?CMSPageID=174

I already have a tight project budget. How do we earn LEED Silver too?
First, READ the LEED-NC Rating Tool. Start early, work with your LEED Accredited Professional to identify target LEED credits, assign a team member the responsibility to follow-up on each LEED credit, and follow the example of other successful projects. Achieving LEED Silver is not that difficult if you establish LEED goals during the planning/programming charrette, identify how you will be able to achieve the energy targets, follow through during design, and convey the requirements to the contractor who builds the project. Of course, there are budget limitations and the bidding climate greatly affects the final project cost, but there are Army projects that predict they will be able to earn LEED Gold ratings within project authorization. Design/Build projects may have an advantage over Design/Bid/Build projects because Design/Build teams can provide continuity and can better coordinate

between the design and construction effort. (For more information on how to use LEED successfully during Army projects, please see ERDC CERL Technical Report "Implementation of the U. S. Green Building Council's LEED® as the Army's Green Building Rating System" at URL: http://www.cecer.army.mil/techreports/Stumpf_Spirit_To_LEED_TR/Stumpf_Spirit_To_LEED_TR.pdf.

Appendix A indicates the **Army Required, Preferred and Avoid LEED credits**. It includes information about credits that are required by Federal, DOD or Army policy and those which are readily achievable for the majority of Army projects. Many of the credits are highlighted as no-cost or low-cost credits that have been successfully earned by other Army projects. For more information please see ERDC CERL Technical Report "Implementation of the U. S. Green Building Council's LEED® as the Army's Green Building Rating System" at URL: **http://www.cecer.army.mil/td/tips/pub/details.cfm?PUBID=5574**.

How does the District validate the project to determine the projected LEED Rating?

The USGBC standard for whether a credit is earned is the standard for Government validation of credits. Project teams will work to reach consensus on which LEED credits have been earned. PDT members realistically assess whether the project meets the LEED technical requirements for each credit. (For example, dirt excavated and reused on site does NOT count towards the credit for local/regional materials). RFP preparer, Designer of Record and construction contractor will provide the documentation required by the USGBC to substantiate each credit. USACE independent technical design reviews include review of LEED documentation. USACE construction administration includes review of construction phase LEED documentation. The Project Manager is responsible for insuring that LEED documentation is collected and saved in the project file.
The LEED Reference Guide is an invaluable resource to help project teams understand best practices for earning LEED credits. Those unfamiliar with LEED may miss easy-to-earn credits. Also, there are changes between SPiRiT (which was based on LEED 2.0) and LEED-NC 2.2 which make it easier for teams to earn several of the LEED credits but team members need to understand the differences.

Another valuable resource to help project teams understand the USGBC standards for credits, the USGBC stance on many common questions relating to credits, best practices for earning LEED credits as well as for identifying potential Innovation in Design credits are LEED Credit Interpretations (CIRs). These are Available on the members only side of the USGBC website. Click 'My Account' from the USGBC main web page (log-in and look for CIRs under 'My Resources.'

What are the points in the Army Military Facility Delivery Process where we need to report the project LEED Rating?

Project Delivery Teams will report the coordinated and endorsed project rating at the points in the facility delivery process indicated in Para 7 Reporting.

Who endorses an Army project LEED Rating? Who will make the determination that the project design achieves the LEED Silver rating?

At the four prescribed rating points, the Government-validated rating will be coordinated with the USACE design/construction agent, Installation Director of Public Works (DPW) or the Reserve Component equivalent, the USACE designated Center of Standardization (COS) if applicable, the designer and the constructor as applicable. The rating will be endorsed by all of these parties. The USACE District, as Design and Construction Agent, is ultimately responsible for ensuring correct interpretation and scoring in accordance with the USGBC standards. The project manager for each PDT will include the LEED scores, endorsements and supporting documentation in the project files.

What if the project scores less than LEED Silver?

See paragraph 3.

Who is considered a member of the Project Team?

The Project Delivery Teams (PDTs), whether for a design-bid-build or a design-build process, must include all facility stakeholders, representatives of all parties affected by the building. In a holistic approach for sustainable design, in addition to the traditional team members (Directorate of Public Works staff, engineering staff, architects, engineers, consultants, contractors, contracting and construction representatives), are added

users representatives, LEED Accredited Professionals (AP), operations and maintenance staff, specialty consultants, construction managers, subcontractors and suppliers, historic preservation staff (if applicable), occupational health and safety staff, and any other party with the affected community who could contribute to the process. Each PDT will be formed based on unique project characteristics, facility type, and the facility delivery process chosen, e.g. design-bid-build (DBB), or design-build (DB). (See ERDC/CERL TR-04-19, SPiRiT Scoring Through Self-Assessment Charrettes).

Project Manager
LEED Accredited Professional (AP)
Facility User Representative/Tenant
Garrison Commander or Directorate of Public Works (DPW)
Design / Engineering Team
Contract Specialist
Architect/Engineer (AE)
Commissioning Authority
Construction Contractor
Design Build Contractor
Construction Waste Manager
Construction Management Team (QA/QC)
RFP Preparer

The installation Directorate of Public Works or the Reserve Component equivalent, the COS, the supporting Engineer District or Authorized Design and Construction Agent, project manager, designer, and constructor are all team members who contribute to project success and ultimately agree by endorsing the final project LEED rating. The installation master planner typically determines where the project site will be, which implicitly determines whether certain LEED credits may be earned by the project. Installation personnel are often the best source of expertise about topics such as storm water runoff, installation recycling programs, available materials and resources from deconstructed buildings, available energy resources and contracts, water availability, and Installation 25 Year Sustainability Goals. It is key to get these stakeholders involved early during the planning and design process charrettes to understand local constraints and opportunities. A Whole Building Design Guide chart depicting "Design Disciplines Interaction with Program Objectives/Building Systems" is available at: http://www.wbdg.org/docs/disciplines_matrix.xls "SPiRiT Team Responsibilities by Discipline" is available at: https://eko.usace.army.mil/Documents/index.cfm?id=6420&pge_prg_id=14984&pge_id=1379

Which LEED credits are no-cost/low-cost?

Appendix A indicates the recommended **Army Required and Preferred LEED credits**. No-cost or low-cost credits that have been successfully earned by other Army projects are identified. For more information please see ERDC CERL Technical Report "Implementation of the U. S. Green Building Council's LEED® as the Army's Green Building Rating System" at URL: http://www.cecer.army.mil/td/tips/pub/details.cfm?PUBID=5574

What are USACE Model Requests for Proposals?

USACE model Requests for Proposals (RFPs) are templates for RFP documents that are generated and controlled by HQUSACE and the COSs. Use of these templates is mandatory for all MILCON Transformation projects. Local revision of the template documents is not permitted without HQUSACE permission. Instructions on access to and use of the MT RFP templates is in the MT RFP Implementation Guide located at https://ff.cecer.army.mil/rfp_wizard/.

Is there a minimum size below which climate controlled buildings are exempt?

There is no threshold for applicability to new construction. If it is climate controlled, it must meet the minimum Silver requirement.

Appendix F – Glossary

Adapt-Build –

A project delivery approach where approved standard designs are site adapted, making only those changes absolutely necessary to fit site or circumstances and minimal changes to the building interiors. Under the MILCON Transformation (See Below), Centers of Standardization are responsible for selecting the acquisition method to acquire standard facilities. Starting in FY08, acquisition will move from a 'Design-Bid-Build' or 'Design-Build' to 'Adapt-Build' approach. Ultimately, 'Adapt-Build' will be the preferred project delivery approach.

Affirmative Procurement –

Federal agencies are directed by the Resource Conservation and Recovery Act (RCRA) to establish affirmative procurement programs to promote the purchase of Environmental Protection Agency (EPA) designated as having recycled or recovered content except when these items do not meet availability, competition, performance, or price criteria.

Affirmative Procurement Managers –

Individual responsible for the management of installation affirmative procurement program. Leads cross-functional team effort to educate installation personnel and provide program publicity.

Beneficial Occupancy Date --

The date agreed upon by an installation DPW, USACE, and tenant organization when administrative control of a facility under construction is transferred from USACE to the garrison commander via DD Form 1354. At this time, although all construction efforts at the facility construction site may not be completed (e.g., punch-list items and other relatively minor construction activities may still be required for facility construction to be considered complete), and USACE may need to continue administering the final stages of the project construction contract until such completion, the user may begin to occupy all or agreed upon parts of the facility and use it for its intended purpose.

Charette, Planning --

A planning charette is an intensive on-site project planning workshop attended by an interdisciplinary team to produce a quality, technically sound DD Form 1391-EF and a Facility Requirements Sketch. The charette lasts for several days, and the planning team consists of representatives of the installation using agency, DPW, DOIM, and others as appropriate; the USACE MSC and district; the IMA region director; and others, depending upon the project type. The user's needs and expectations are accurately defined in terms of functional and technical requirements; the facility and site requirements are described in sufficient detail to develop a project scope; and the project planning estimate are based on those requirements to provide a reliable project cost.

Charette, Design --

A design charette is an intensive Code 3 Design work session, usually at the customer's site (including the NAF contracting officer for NAF construction projects). The charette lasts for several days and is attended by the customer, designer (either in-house or Architect-Engineer), possibly representatives from regulatory agencies, and the USACE district project management team. The charette process consists of a series of on-site interviews with the purpose of fully developing and quantifying the functional and technical requirements of the project, including cost estimates. The information obtained at the charette is used in the project definition submittal.

Continuous Building Program --

The USACE Continuous Building Program is a project delivery approach where a fixed pool of contractors provides a standard design facility at multiple sites under the direction of the Center of Standardization. The continuous building approach provides greater cost predictability to Army and industry, faster delivery of facilities at lower design costs, and an opportunity to continuously improve delivery processes and Army standard facility designs.

Department of Defense (DD) Form 1391 --

The DD Form 1391 is a programming tool used to request and justify a construction need. It defines the site, scope and cost estimate for the project. It must be relevant, factual, clear and concise. The documentation and cost estimates ensure functionality, operability, maintainability, efficiency, and economy. It clearly defines the user's needs and expectations for the selected site.

Design-Bid-Build --

Design-Bid-Build is the traditional owner driven project delivery method where design and construction activities are separate. The project is designed by a design / engineering team either in-house at the DPW or Corps of Engineers District or by Architect-Engineer (AE) contract according to program requirements established in the DD 1391. Following the completion of design and construction documents, a publicly advertised, competitive bid process is used to award the project to the lowest bidder determined to be a responsive and responsible. The successful bidder executes construction in accordance with plans and specification.

Design-Build --

A project delivery method where one contractor is selected for both design and for construction of a project under a single contract. The D-B method uses competitive evaluation of technical proposals to select a contractor to design and build the project. For a contract award, the selection decision may be based on the best value to the Government from the combination of quality, management expertise, and price, but not necessarily the lowest price. Another selection method may be based on the lowest priced, technically acceptable proposal. This second method often is used for smaller scale or less complex projects that do not require a detailed technical proposal. (*TI 800-3, Technical Requirements for Design-Build*)

The Army is increasing its use of Design-Build (D-B) as a project delivery strategy. While the D-B method helps to speed up the award process, it does require clearly defined requirements up front in the DD Form 1391. D-B projects need to have all requirements clearly defined in the RFP process. These requirements determine the level of quality the contractor needs to provide. The RFP and the contractor's proposal become part of the contract documents

LEED (Leadership in Energy and Environmental Design).--

The U. S. Green Building Council (USGBC) is the nation's foremost coalition of leaders from across the building industry working to promote buildings that are environmentally responsible, profitable and healthy places to live and work. The USGBC has developed a suite of nationally recognized LEED green building rating systems which are available for new construction, existing buildings, and commercial interiors. LEED rating tools are in pilot testing for core & shell developments, homes, and neighborhood developments. LEED information is available at http://www.usgbc.org. The USGBC introductory PowerPoint presentation is available at URL: https://www.usgbc.org/Docs/Resources/usgbc_intro.ppt

LEED®-NC (LEED for New Construction) --

The U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design, New Construction 2.2 (LEED®-NC) Green Building Rating System® for New Construction & Major Renovations is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. The Army directed the transition from SPiRiT to LEED®-NC starting with the FY 08 MCA program.

LEED®-NC Silver Level --

The Army mandated minimum level of performance of LEED®-NC for Army facilities as directed by the Army starting with the FY 08 MCA program. A score of 33 to 38 points on a 69 point scale; the second performance level in the LEED®-NC Green Building Rating System®, 'Certified,' 'Silver,' 'Gold' and 'Platinum.'

LEED-Online –

To be certified by the U. S. Green Building Council (USGBC) under the LEED system, projects must be registered with the USGBC and submit binders of paper documentation for their review. The USGBC has recently gone paperless. Projects now have the option to submit 100% of their documentation online. LEED-Online is a user-friendly interface that enables project team members to upload credit templates, track Credit Interpretation Requests (CIRs), manage key project details, contact customer service, and communicate with reviewers throughout the design and construction reviews. With LEED-Online, all LEED information, resources, and support are accessible in a centralized location. Army projects may take advantage of this electronic documentation approach simply by registering the project for a flat fee of $450, even if they never seek USGBC certification. LEED-Online information is available at https://www.usgbc.org/DisplayPage.aspx?CMSPageID=277&

LEED Letter Templates --

Pre-formatted submittal sheets for documentation of each LEED prerequisite and credit in the USGBC certification process. The Letter Templates outline the specific project data needed to demonstrate achievement of the LEED performance requirements and include calculation formulas where applicable. Sample Letter Templates are available for download from the USGBC Web site for review purposes only in a non-executable format. Participants in projects registered with the USGBC may access fully executable Templates through LEED-Online.

Life Cycle Costs Analysis/Whole Building Integrated Design Process --

Life-cycle cost analysis (LCCA) is a method for assessing the total cost of facility ownership. It takes into account all costs of acquiring, owning, and disposing of a building or building system. LCCA is especially useful when project alternatives that fulfill the same performance requirements, but differ with respect to initial costs and operating costs, have to be compared in order to select the one that maximizes net savings. (The Whole Building Design Guide, http://www.wbdg.org/design/lcca.php)

The design of buildings requires the integration of many kinds of information into a synthetic whole. An integrated process, or "whole building" design process, includes the active and continuing participation of users, code officials, building technologists, cost consultants, civil engineers, mechanical and electrical engineers, structural engineers, specifications specialists, and consultants from many specialized fields. The best buildings result from active, consistent, organized collaboration among all players. (Army PDT) (The Whole Building Design Guide, http://www.wbdg.org/design/engage_process.php)

MILCON Transformation --

The goal of MILCON Transformation is to deliver quality Army facilities in less time, for lower costs and achieving Army sustainable design and development standard. MILCON Transformation places greater emphasis on master planning, the facility proponent setting facility requirements and standards, and the standardization of facilities and delivery processes. The Corps will change the way it executes Army MILCON to a continuous building program. It allows for expanded use of all types of construction and manufactured building solutions. It maximizes use of industry standards by using international building codes and focusing on performance/product and not “how to”.

Model Request for Proposals (RFP) --

Initial MILCON Transformation efforts include model Requests for Proposals (RFPs) being vetted by USACE and industry. Model RFPs were developed for barracks, company operation facilities, brigade and battalion headquarters, dining facilities, and the tactical equipment maintenance facilities. Beginning in FY07, MCA and BCA projects will utilize the model RFPs to acquire new facilities. USACE Centers of Standardizations are being established for each type of facility, or product line.

P2 Database Entry --

P2 is the U. S. Army Corps of Engineers’ program and project management tool supporting the Corps’ corporate, regional, and district-level project management business processes. It is a suite of commercial-off-the-shelf (COTS) software applications configured to support project execution in all areas of the Corps’ responsibility, and provides a corporate database for decision support capability. SPiRiT/LEED®-NC scores and explanatory comments will be recorded in P2 at all reporting phases for projects involving the Corps.

Sustainable Design & Development --

SDD is an integrated approach to planning, designing, building, operating and maintaining Army facilities in a collaborative and holistic manner among all stakeholders. It uses “cradle to cradle” thinking, in that it is possible to “harvest” materials from deconstructed facilities and reuse them instead of dumping them in a landfill

Sustainable Project Rating Tool (SPiRiT)--

The Sustainable Project Rating Tool (SPiRiT) is a self-assessing system designed to help the Army achieve facilities that meet the needs of current missions and accommodate future missions in a sustainable cost-effective, environmentally friendly manner: SPiRiT was developed in response to Executive Order 13123 – Federal Leadership in Energy Management, which required DoD to develop SDD principles. SPiRiT is based on the U. S. Green Building Council’s LEED 2.0™ tool. The SPiRiT rating tool document and free software called the

Sustainable Designer's Aid (to help project teams successfully use SPiRiT when planning and designing Army projects) is available at https://eko.usace.army.mil/fa/sdd/sdd_spirit.

SPiRiT Gold level –

The current directed Army minimum SPiRiT level of performance for facilities prior to the FY 08 MCA program. A score of 50 to 70 points on an 100 point scale; the third performance level in the Army's Sustainable Project Rating Tool (SPiRiT), 'Bronze,' 'Silver,' 'Gold' and 'Platinum.'

Vertical Building Construction Projects with Climate-Controlled Spaces

Installation infrastructure is typically defined as 'vertical', such as buildings, or 'horizontal' such as roads, utilities, airfields and ranges. Climate control is defined, for purposes of this guidance, as mechanical heating and/or cooling of a space for human comfort.